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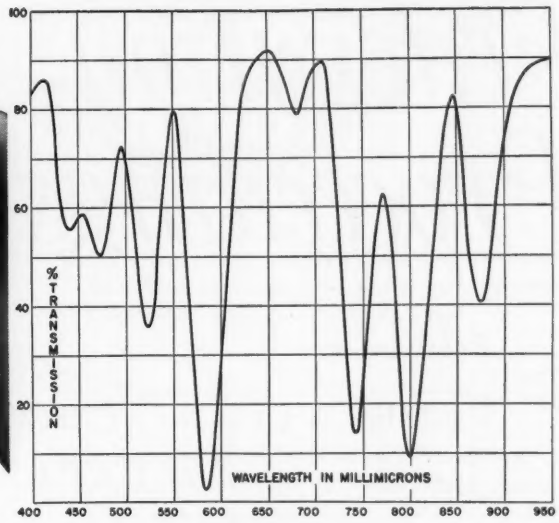

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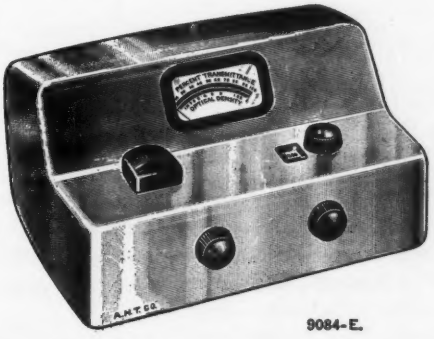

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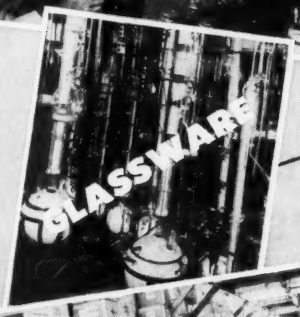

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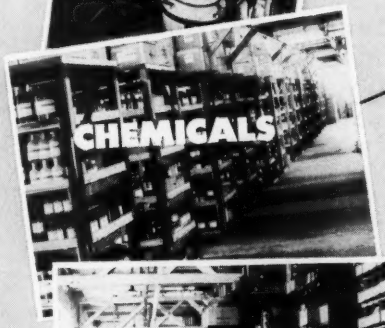

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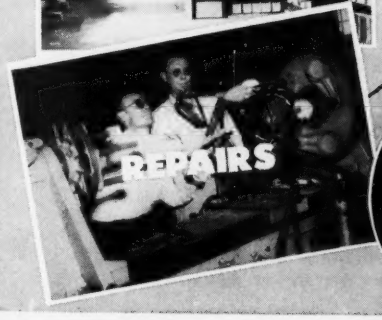

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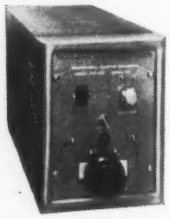

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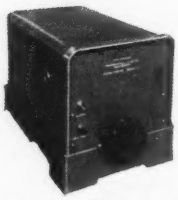

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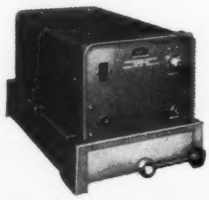

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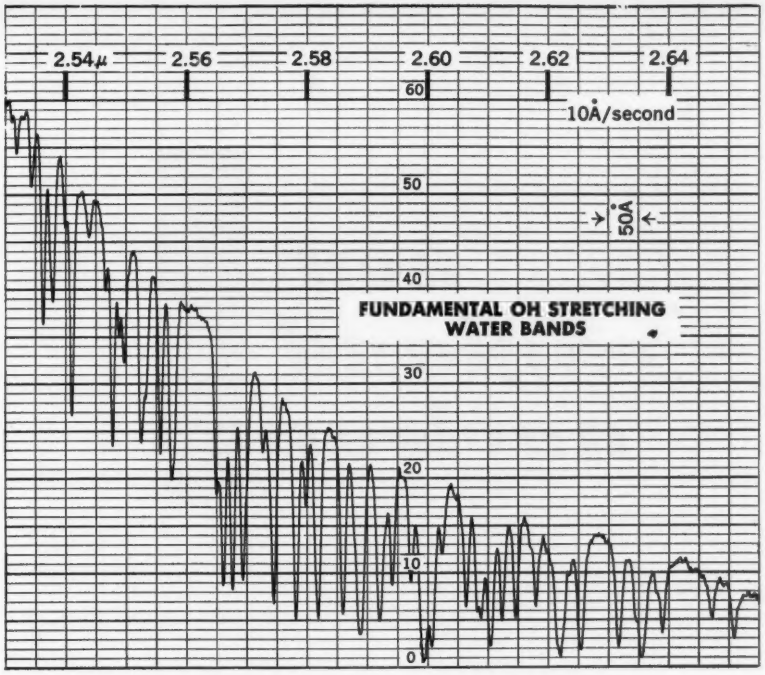

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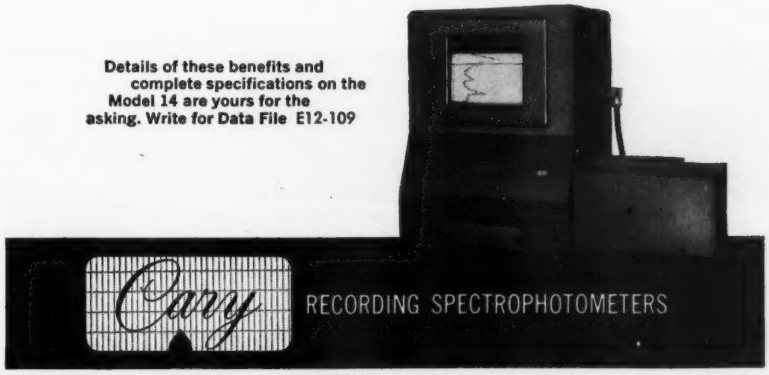

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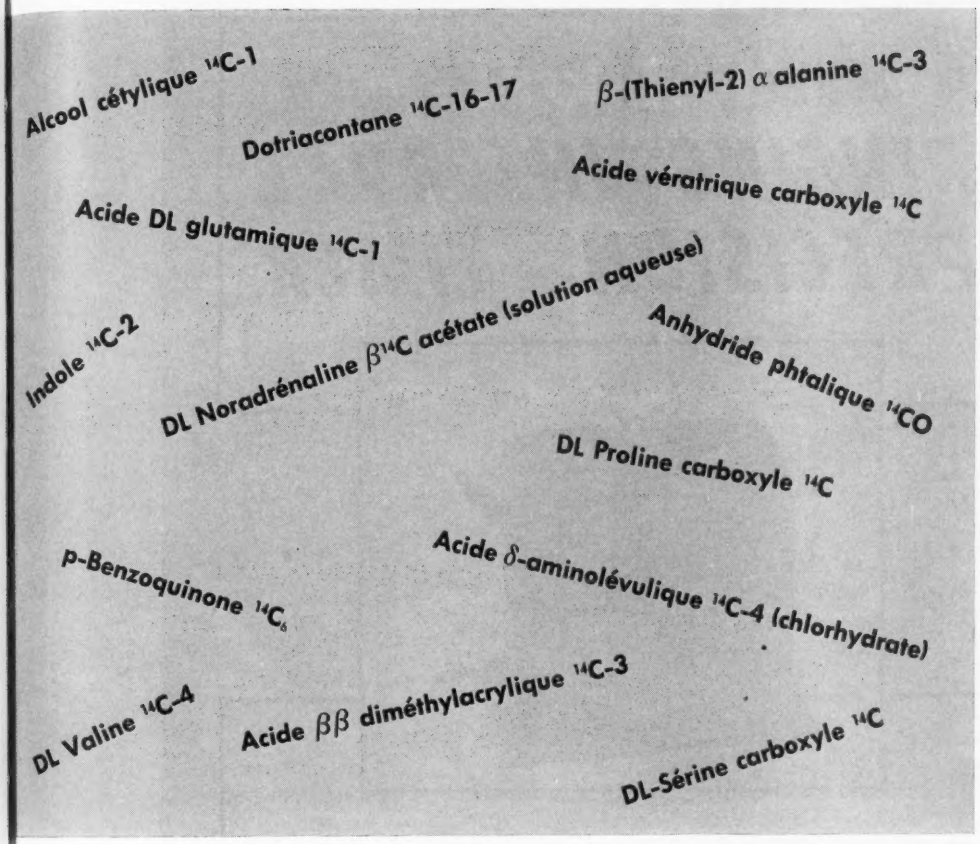

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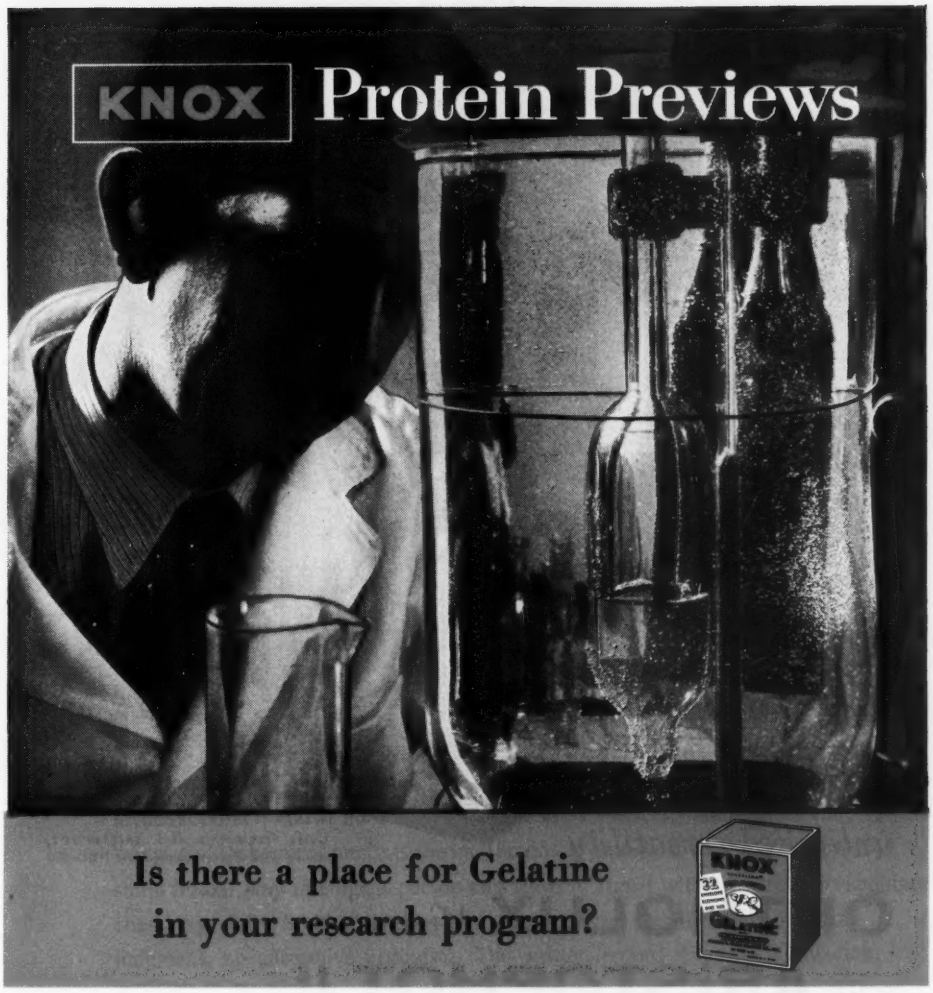

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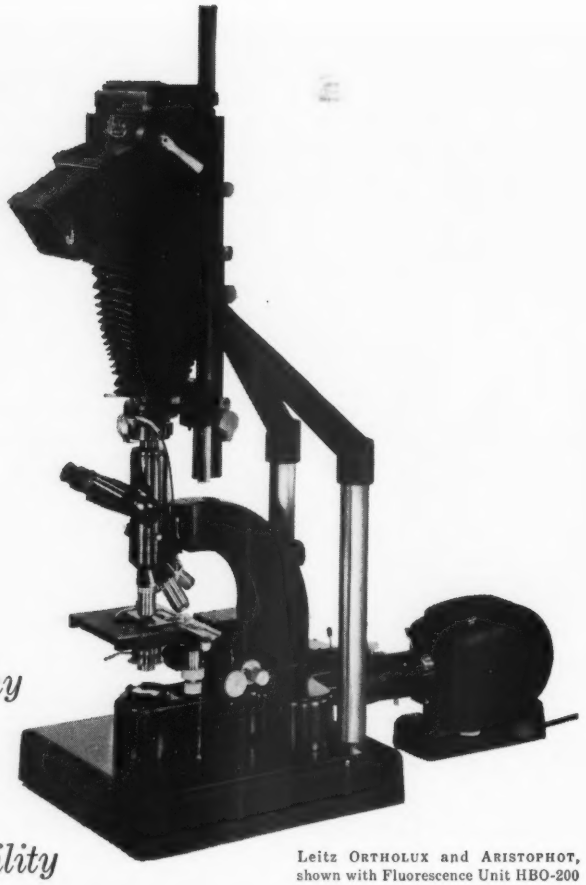

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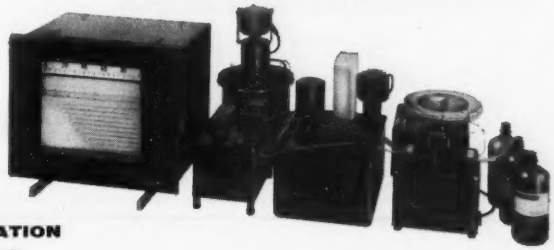

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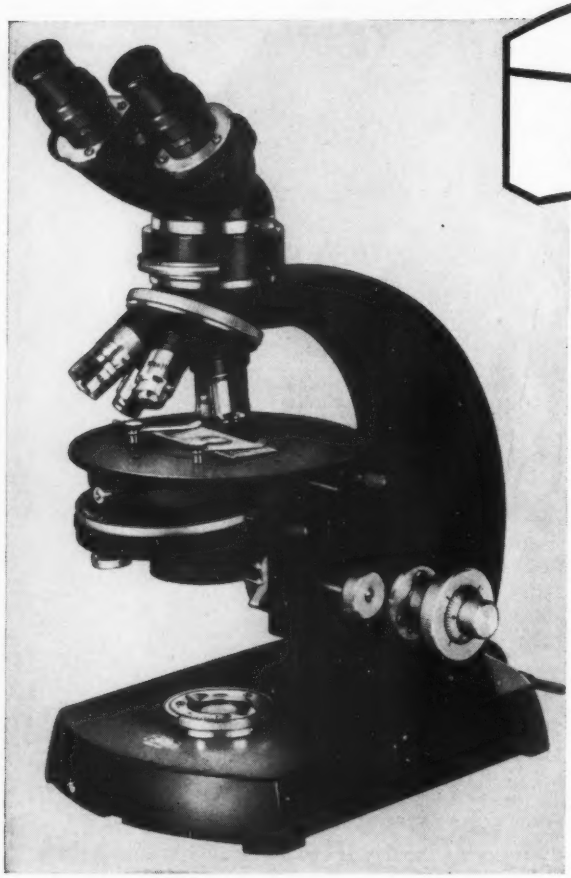

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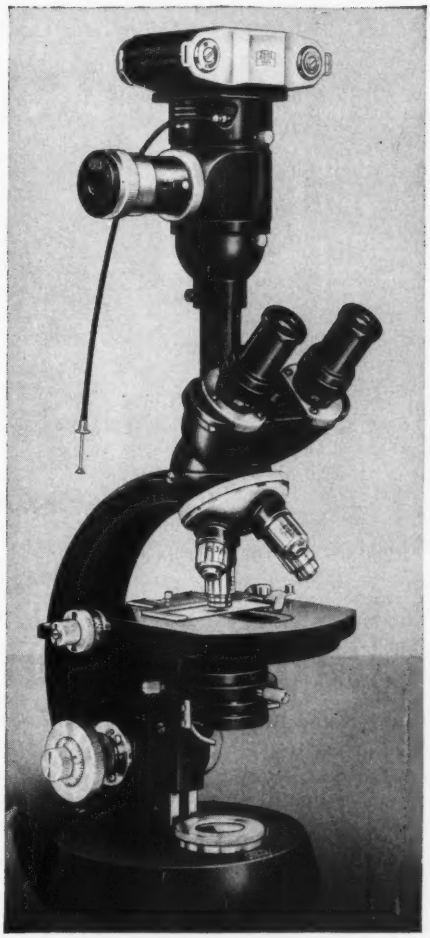

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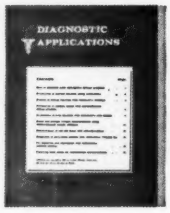

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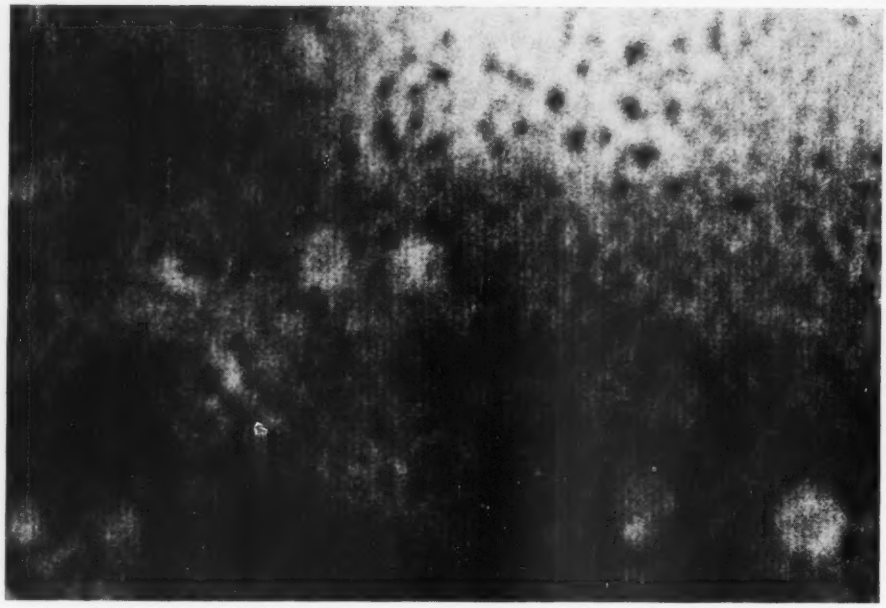

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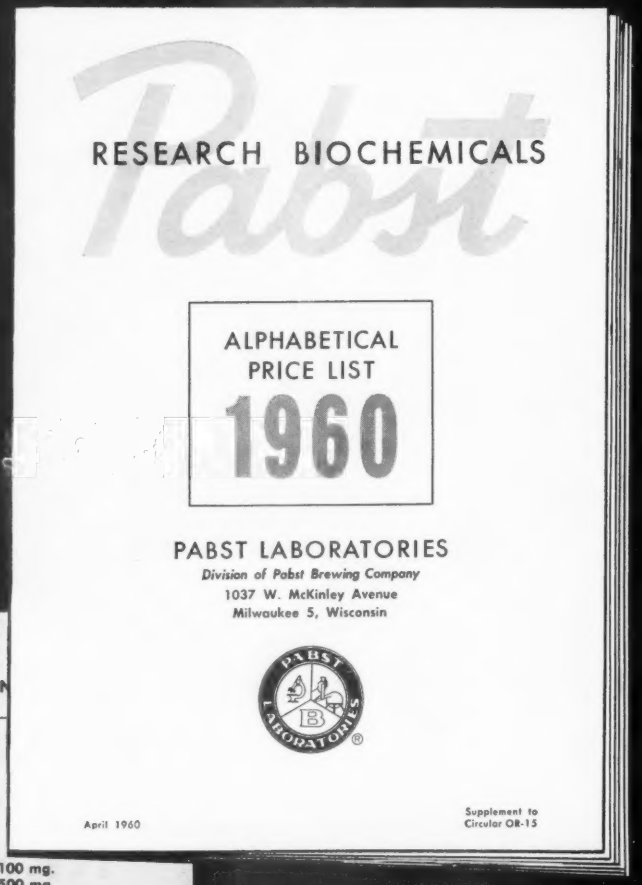

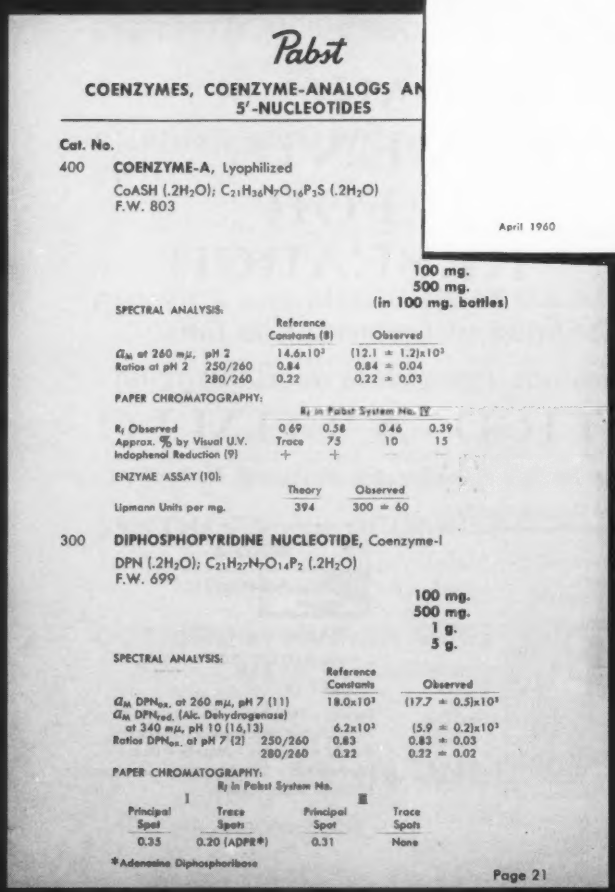

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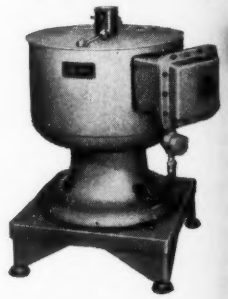

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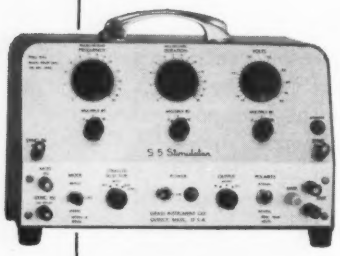

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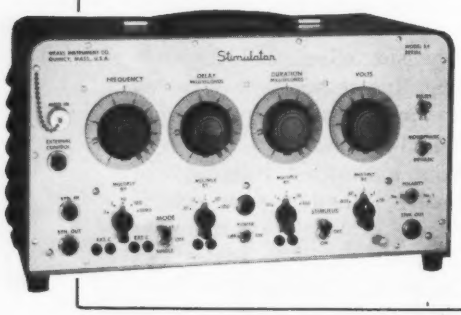

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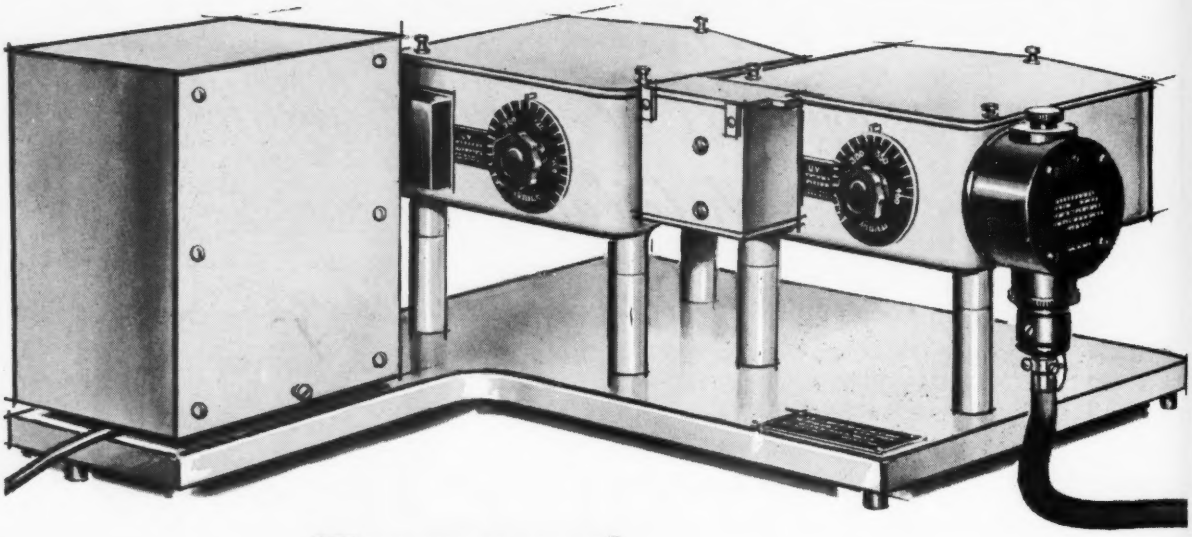

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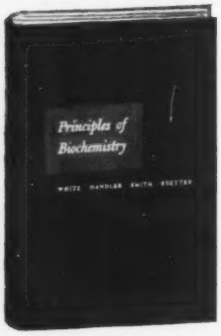

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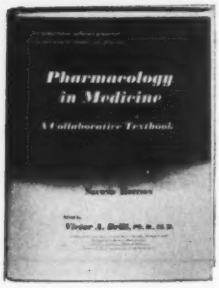

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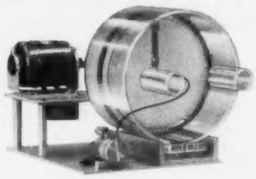

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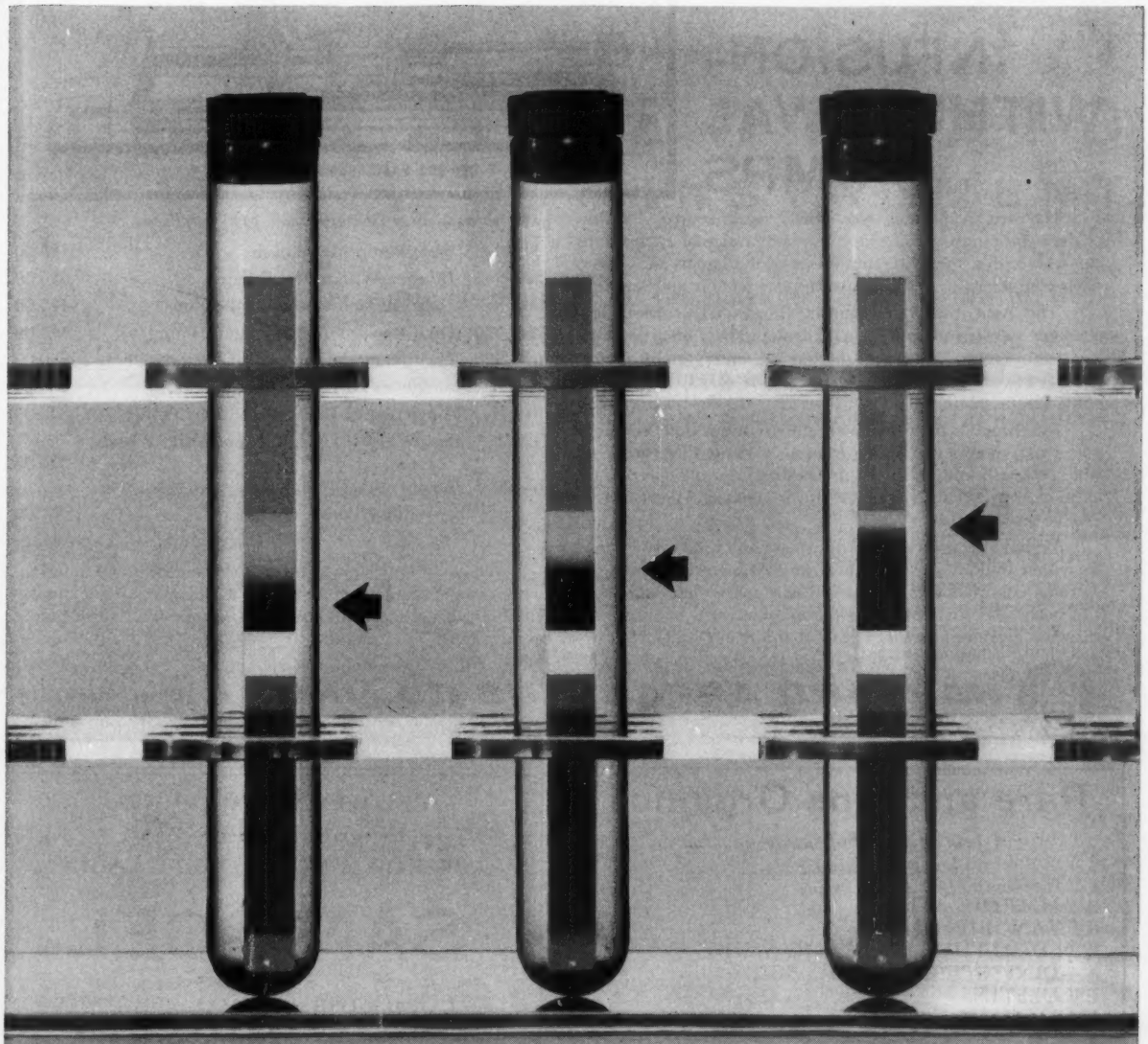

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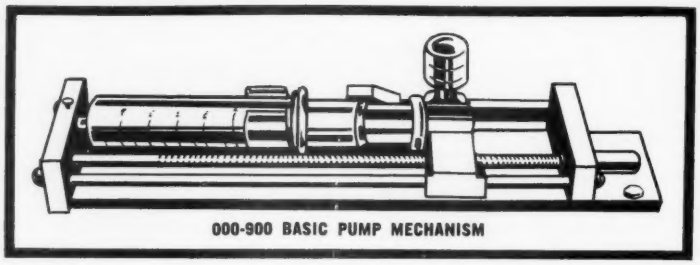

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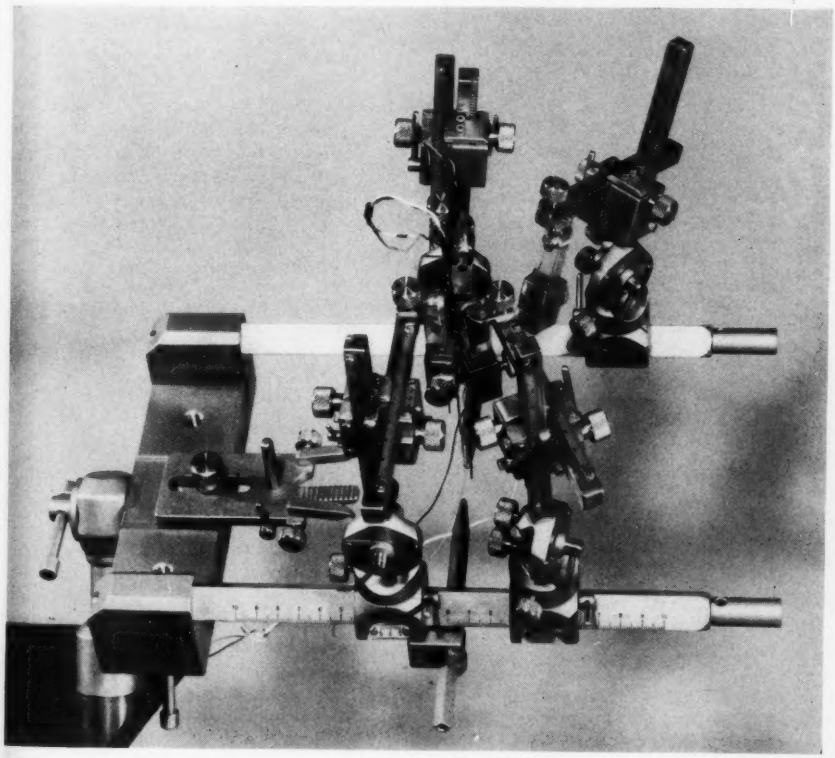

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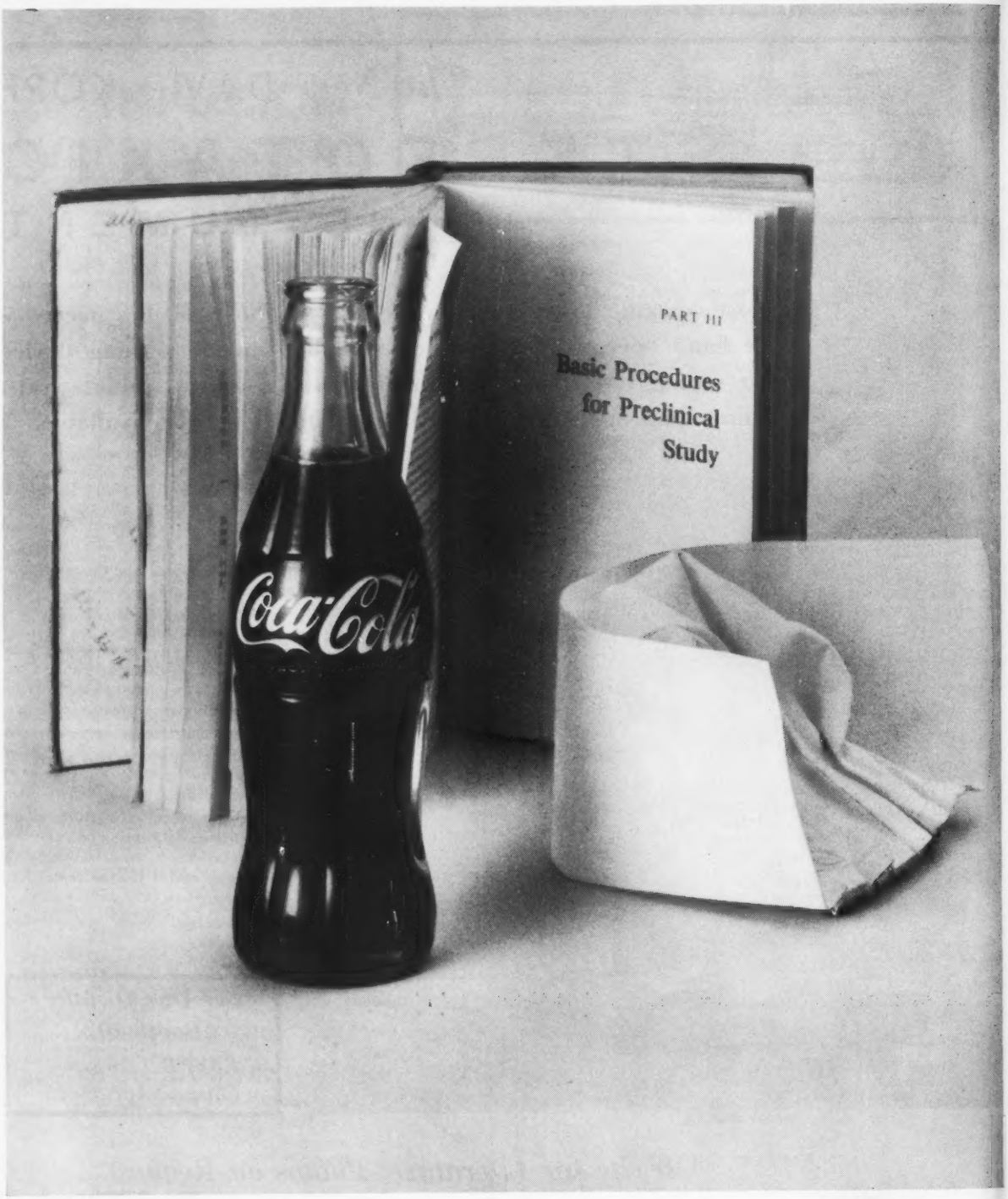

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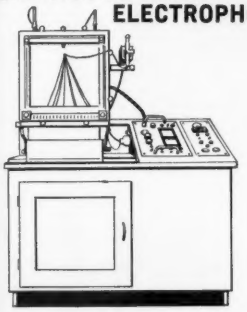

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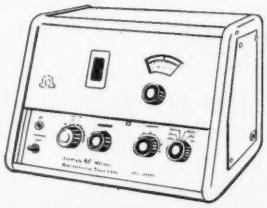

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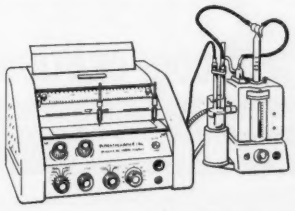

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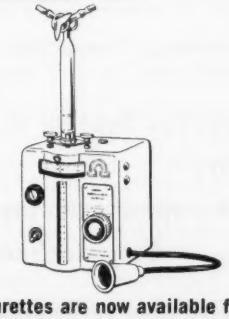

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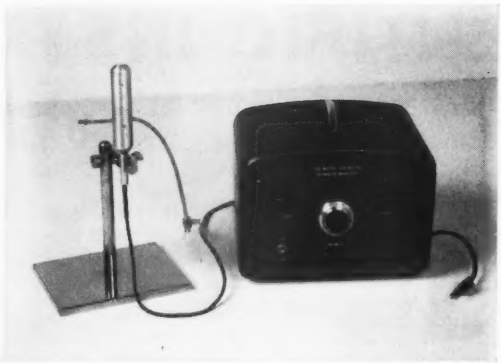

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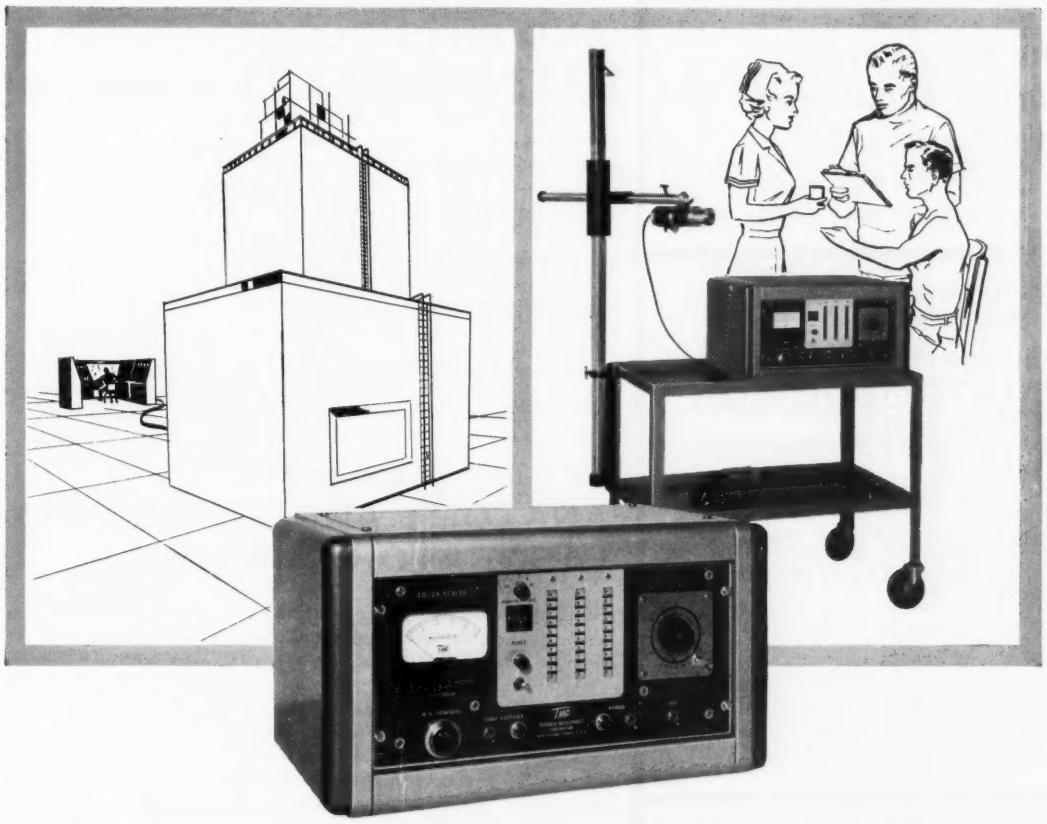

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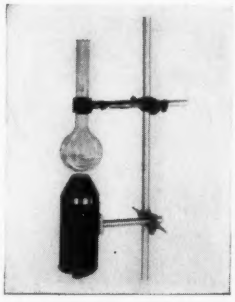

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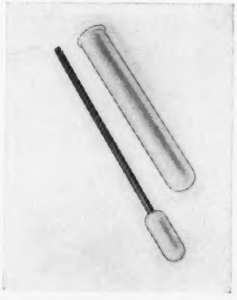

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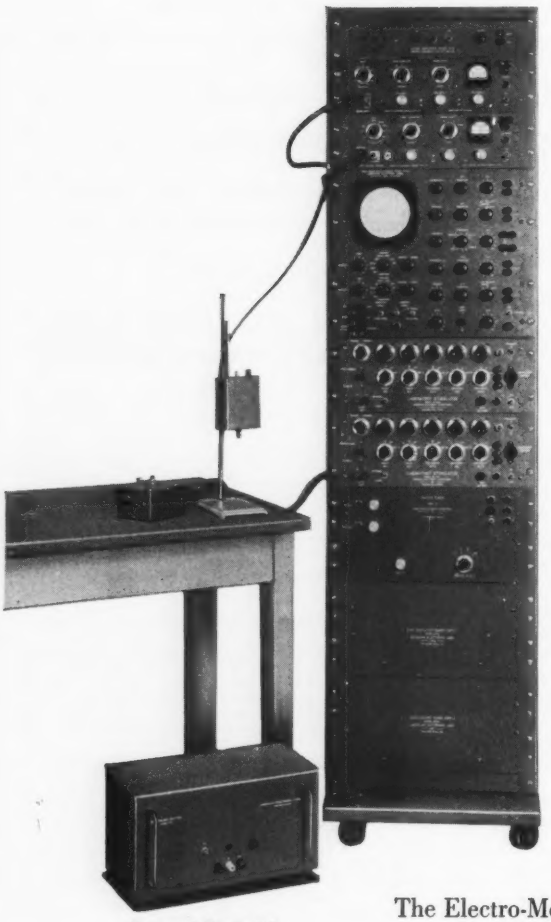

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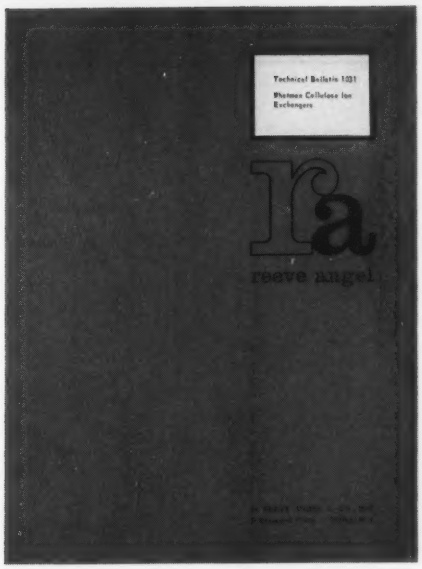

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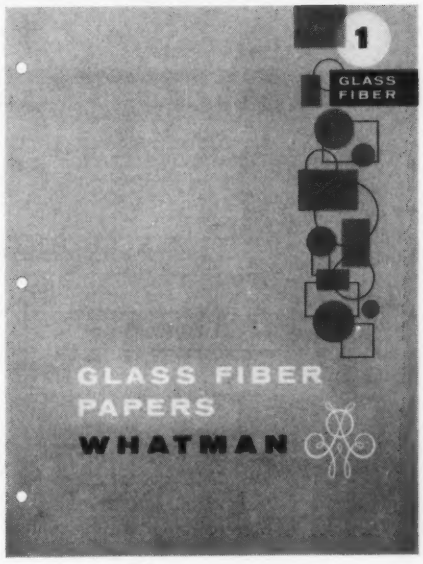

TECHNICAL BULLETIN 1012 *Whatman Filter Papers for Chromatography.* A comprehensive listing of Whatman papers used for chromatography with a description of the physical and chemical properties of each grade.

TECHNICAL BULLETIN 1 *Whatman Glass Fiber Papers.* Suggested applications for steroid separations and electrophoresis.

TECHNICAL BULLETIN 1014 *Whatman Silicone Treated Papers.* Possible application for reverse phase chromatography.

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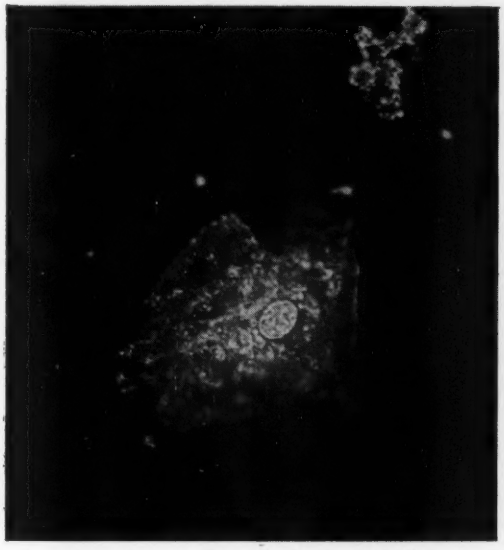
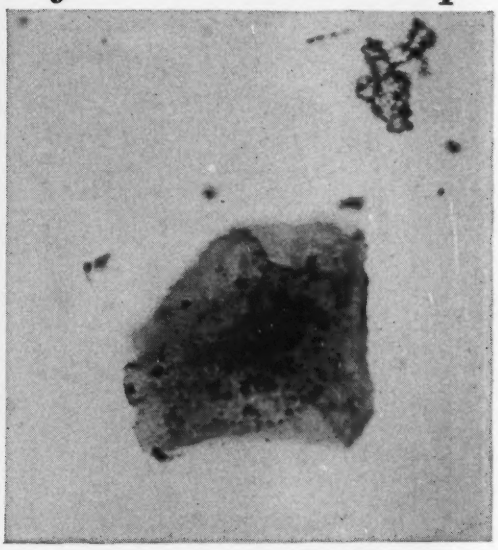
Here's how you can
MEASURE OPTICAL PATH DIFFERENCE
with the AO-Baker Interference Microscope



1. First, as shown in the photomicrograph* above, the microscope analyzer was rotated until the background was brought to extinction. Readings were taken directly from the analyzer scale. Averaged settings resulted in reading of 70.4°.



2. Next, the analyzer was rotated until the nucleus of the cell was brought to extinction. Averaged settings resulted in reading of 138.2°.

3. The Optical Path Difference, in degrees, is *twice* the difference between the two readings:

$$\text{OPD} = 2\,(138.2° - 70.4°) = 135.6°;\ \text{or OPD} = \left(\frac{135.6°}{360°}\right).546 = .206 \text{ Microns.}$$

Optical path difference measurements can be made to an optimum accuracy of 1/300 wavelength. This unique ability to measure optical path thicknesses is in itself of great importance. But even more important, these measurements can be converted into a variety of quantitative information of great potential value. Water and protein content of a cell, for example, may be measured. Materials such as glass, plastics, emulsions, textiles can be examined.

While the AO-Baker Interference Microscope is primarily a quantitative instrument, it also offers unique advantages for qualitative observations through variable intensity contrast and dramatically effective variable color contrast.

*Photomicrographs taken by Mr. Lynn C. Wall, Medical Division, Eastman Kodak Co. Data: Epithelial Cell. AO-Baker Interference Microscope, 40X Shearing objective, 10X eyepieces. Corning filter CS4-120 with AO Model 630 Pulsarc Illuminator to transmit monochromatic light at .546 microns.

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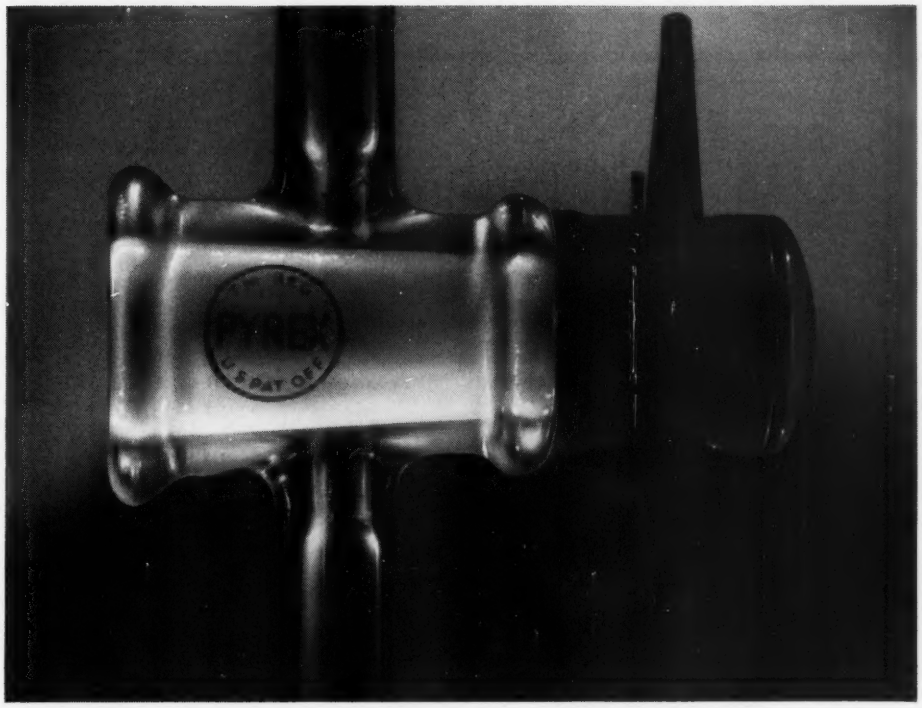

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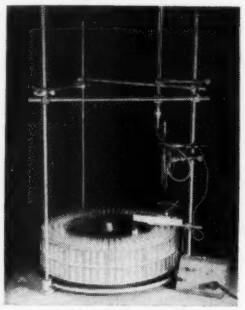

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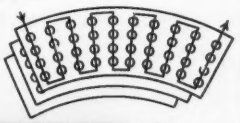

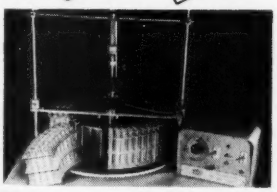

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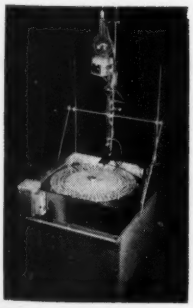

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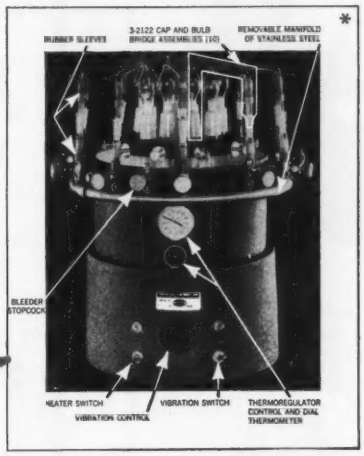
For the rapid and simultaneous evaporation under controlled temperature and vacuum of samples collected from a chromatographic column, centrifuge tubes, or by solvent extraction.



FEATURES

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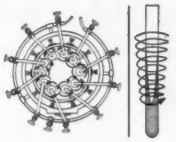

vortex created by eccentric motion of unit

Arrows indicate eccentric motion of unit

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- **Simultaneously evaporates 10 test tubes or centrifuge tubes, 16-25 mm diameter.**
- **Connects to efficient water aspirator as vacuum source.**
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*** Vacuum Manifold only, made of pyrex-brand glass also available.**

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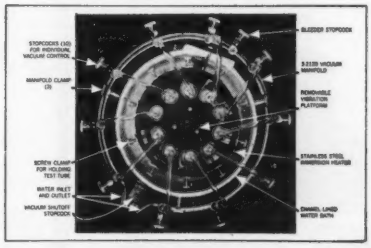

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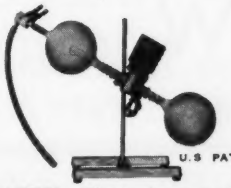

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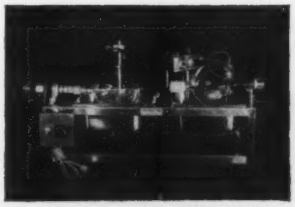

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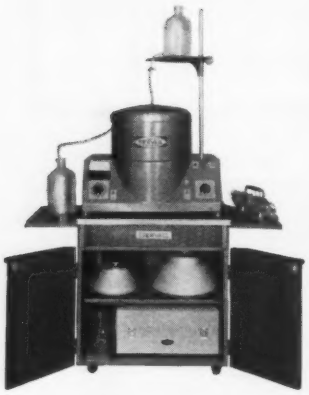
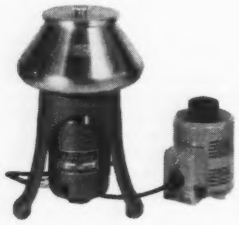


SS-3 Automatic Superspeed Centrifuge with Continuous Flow System—on SERVALL, Omni-Cab laboratory cabinet.



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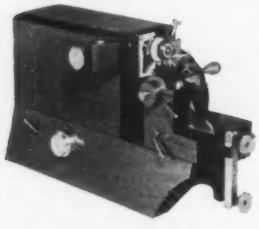
SS-4 Enclosed Superspeed Centrifuge with control panel removed for remote control operation.



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*REFERENCES: 1. Chemical & Engineering News, November 16, 1959. Pg. 38
2. Dekker, et al; J.B.C. **233**, 434 (1958)

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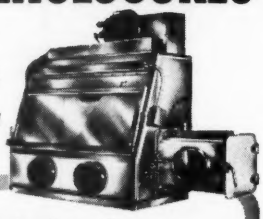

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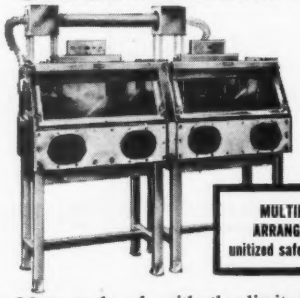

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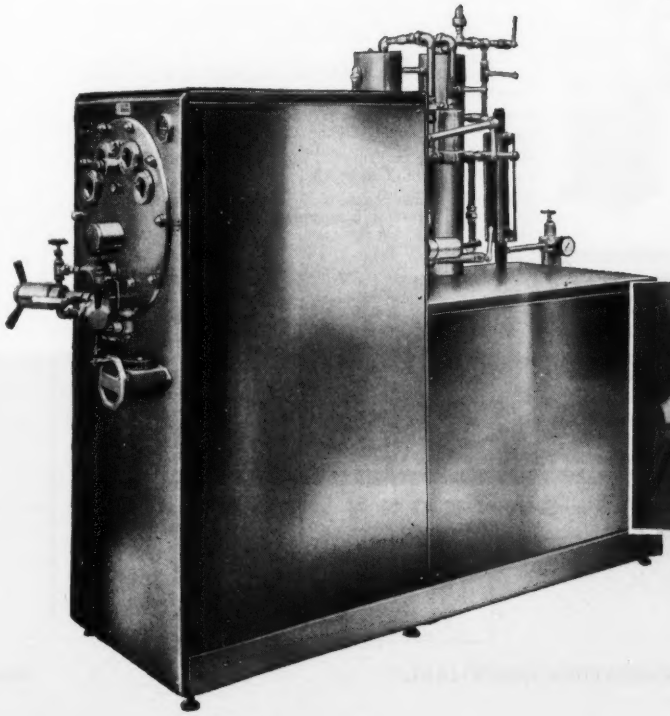

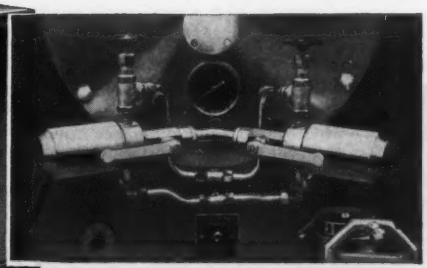

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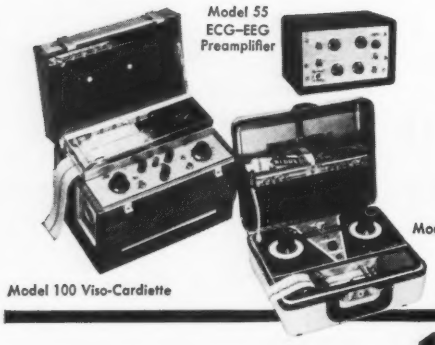

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New Model 100 Viso . . . 2 recording speeds, 3 sensitivities for extreme diagnostic accuracy.

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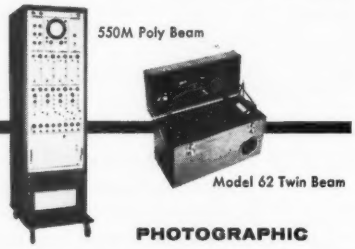
Model 55 EEG/ECG High Gain Preamplifier . . . designed for use with Sanborn 'cardiographs and multichannel recorders for fetal ECG's, EEG (monitoring), small muscle myograms. Fully transistorized, portable unit.



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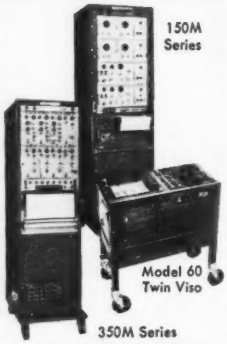

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550M Poly-Beam series . . . 6 or 8 channels with interchangeable plug-in preamplifiers, single cabinet housing, optional plug-in monitoring unit (same as 350M). Model 62 Twin Beam . . . 2-channel system for diagnostic phonocardiograms, ECG'S, etc.

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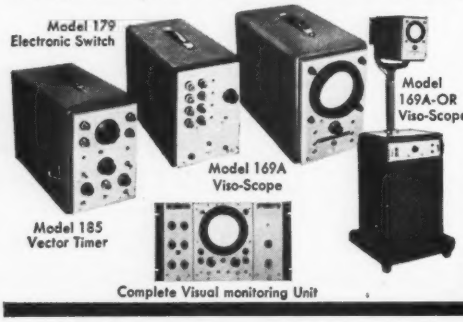

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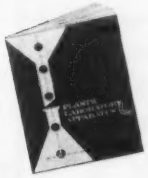

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- designed specifically for breeding mice
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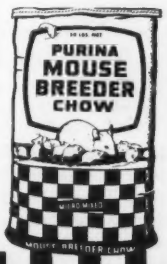

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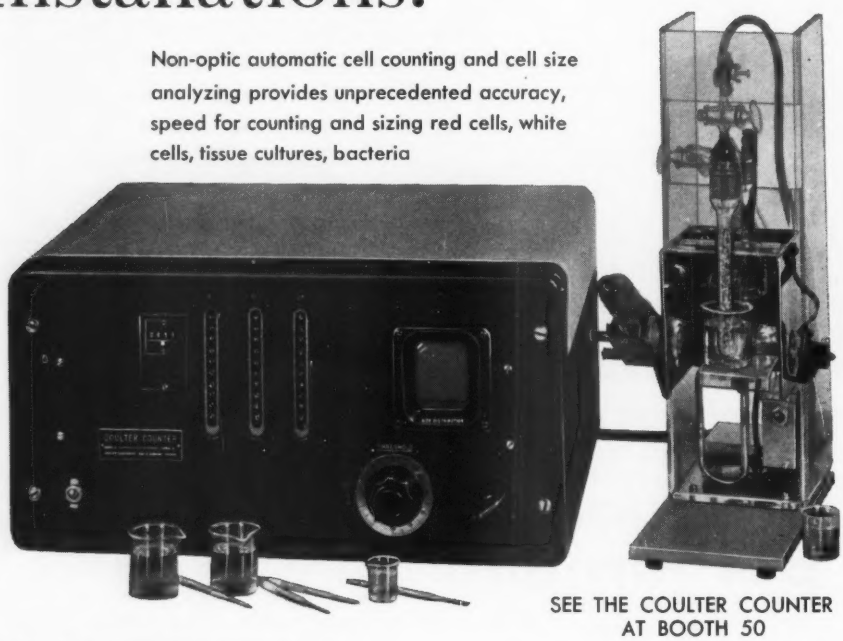

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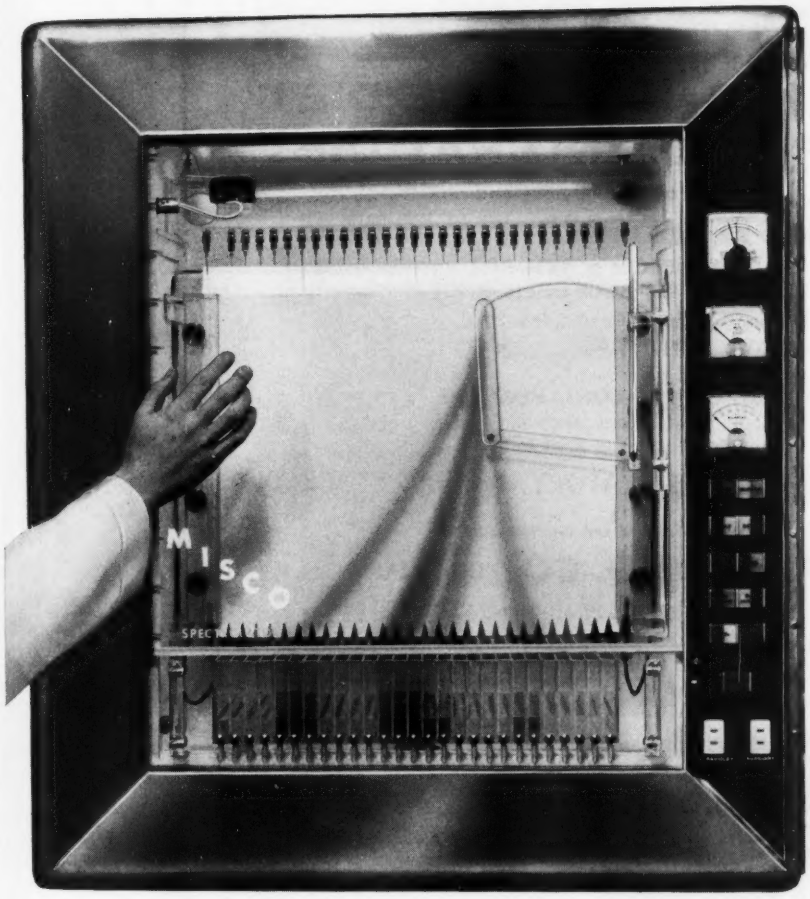

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Reference: Dr. R. J. Kutsky, Veterans Administration Hospital, San Francisco (personal communication)

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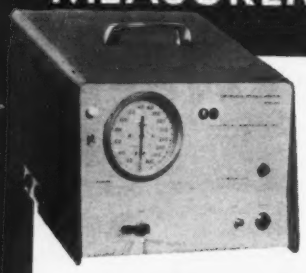

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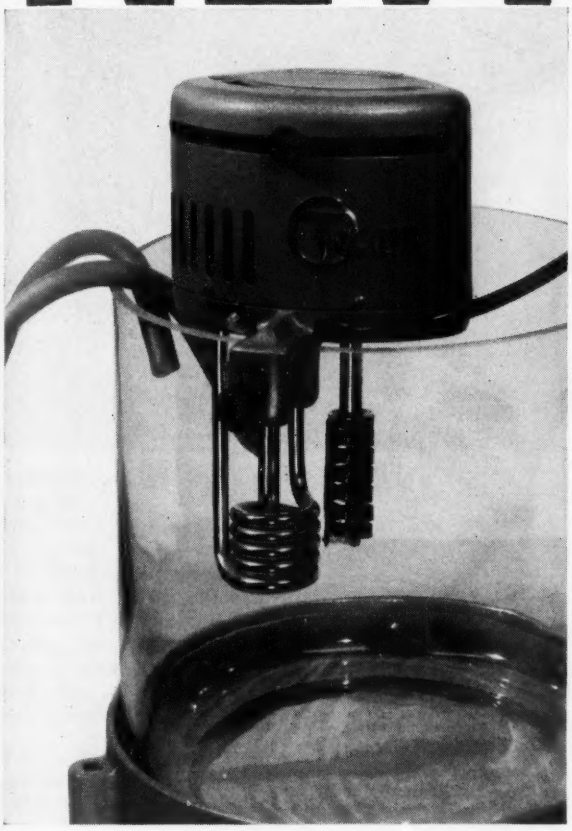

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a more accurate rugged *TEMPUNIT* for water bath control

TEMPUNIT is a heater, stirrer, circulator and controller all in a single, compact, low cost unit. It is designed to fit any suitable container to make a complete water bath in less than a minute!

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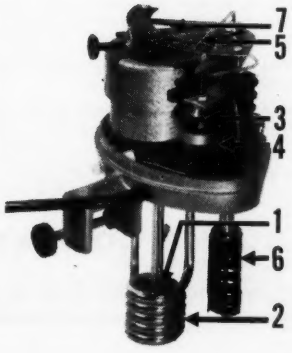

Net weight 6½ lb. Shipping weight 12 lb. Overall height 12". Case dimensions 5" x 4¾" x 6¾".

No. FP 414-60 TEMPUNIT, each.....$135.00

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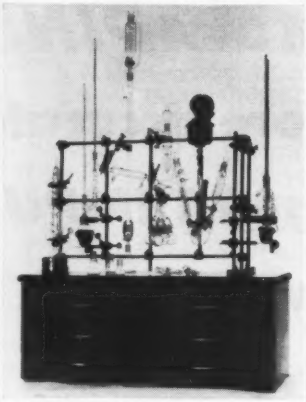

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Ball & Socket Joints reduce condensate hold-up, simplify clamping and minimize breakage if unit is misaligned.

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Carrel Flask. High quality windows allow optical observation through top and bottom surfaces with minimum distortion. Two diameters—35 mm. and 50 mm.

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T-Flask. Inside bottom surfaces flat to allow large number of cultures to be planted and grown evenly. Approximate floor area—9, 15, 30, and 60 $cm.^2$

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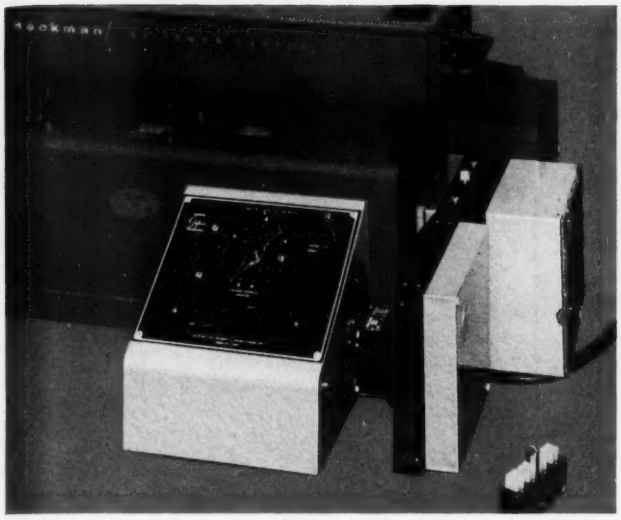

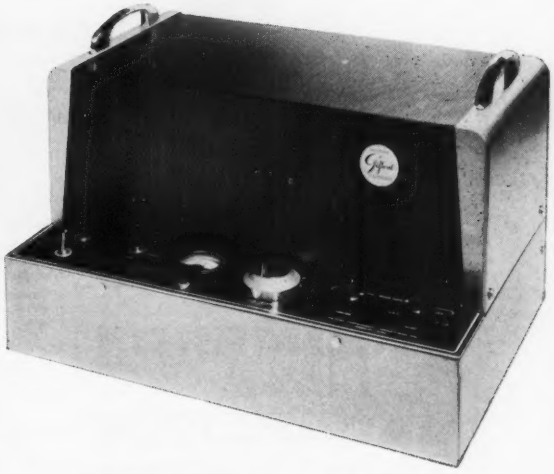

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Valuable research time is saved in enzyme assays by this new system which provides automatic recording of absorbance changes up to four cuvettes simultaneously. Readily attached to any spectrophotometer, this stable, linear absorbance recorder and precision cuvette positioner accurately handles a large volume of assay work with a minimum of supervision.

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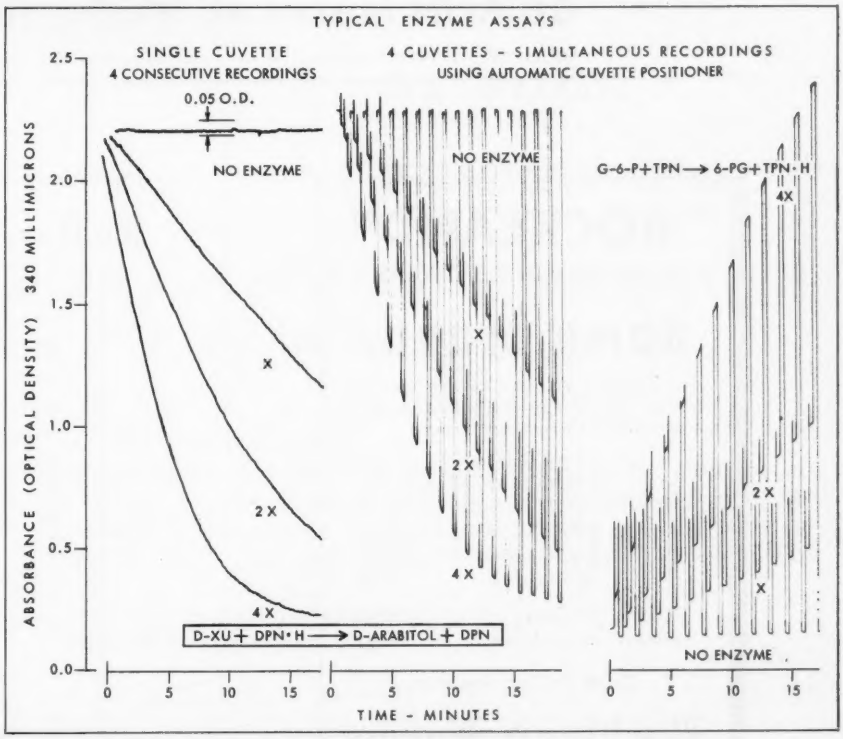
Standard cuvettes or microcuvettes with pin hole can be accommodated. Sufficient output is available to drive most recording systems.

Completely line-operated and with a minimum of operating controls, the Model 200 Optical Density Converter and Model 210 Cuvette Positioner make a convenient, versatile and time-saving new tool for the Biochemist.



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Physiological research instrumentation including our Model 103 Cuvette Densitometer, Digital Cardiotachometer, and Computing Spirometer will also be exhibited.

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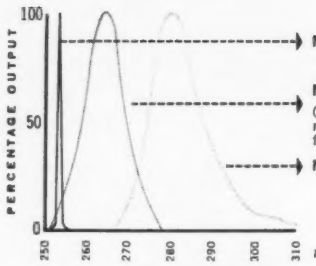

- Designed to indicate which test tubes in the fraction collector contain material of interest
- Fit on the apparatus mast of the Fractionator directly above the volumetric unit
- Equipped with electrical output to operate a recorder
- May be connected to any make of fraction collector.

Interchangeable interference filters make it possible for one absorption meter to be used as either a UV-265IF or a UV-280IF.

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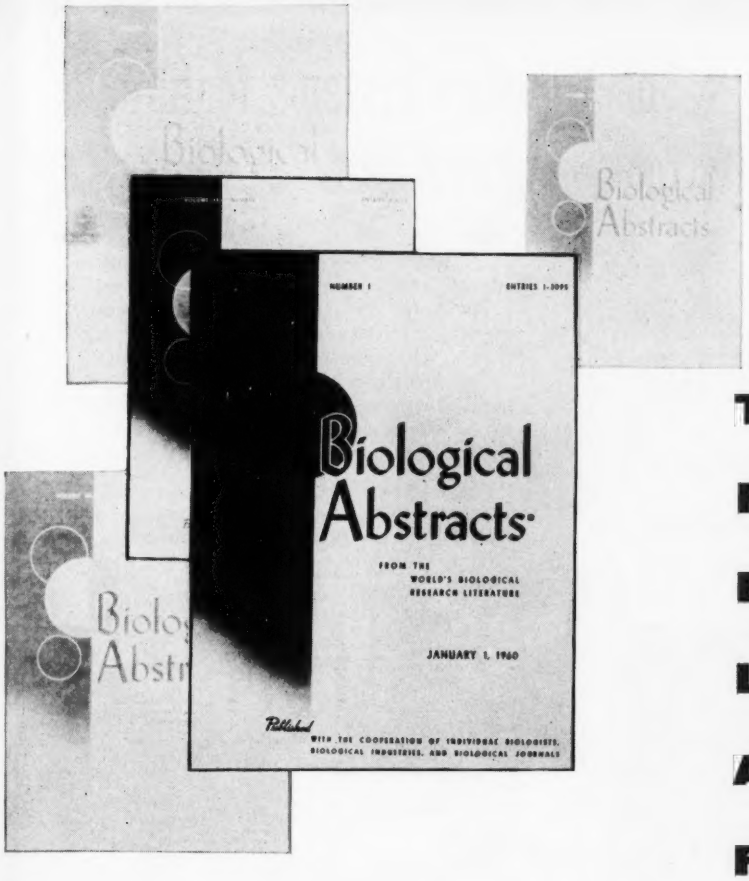

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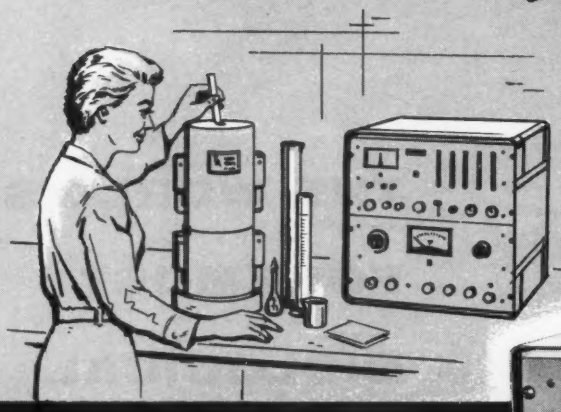

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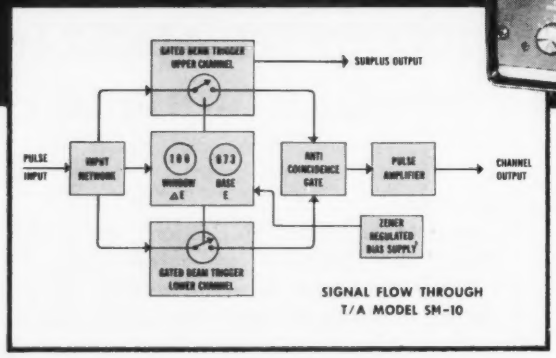

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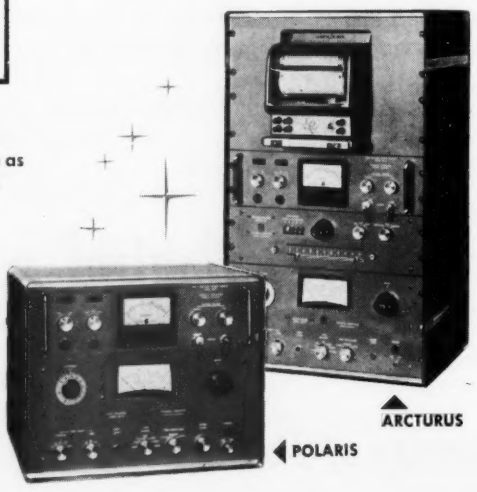

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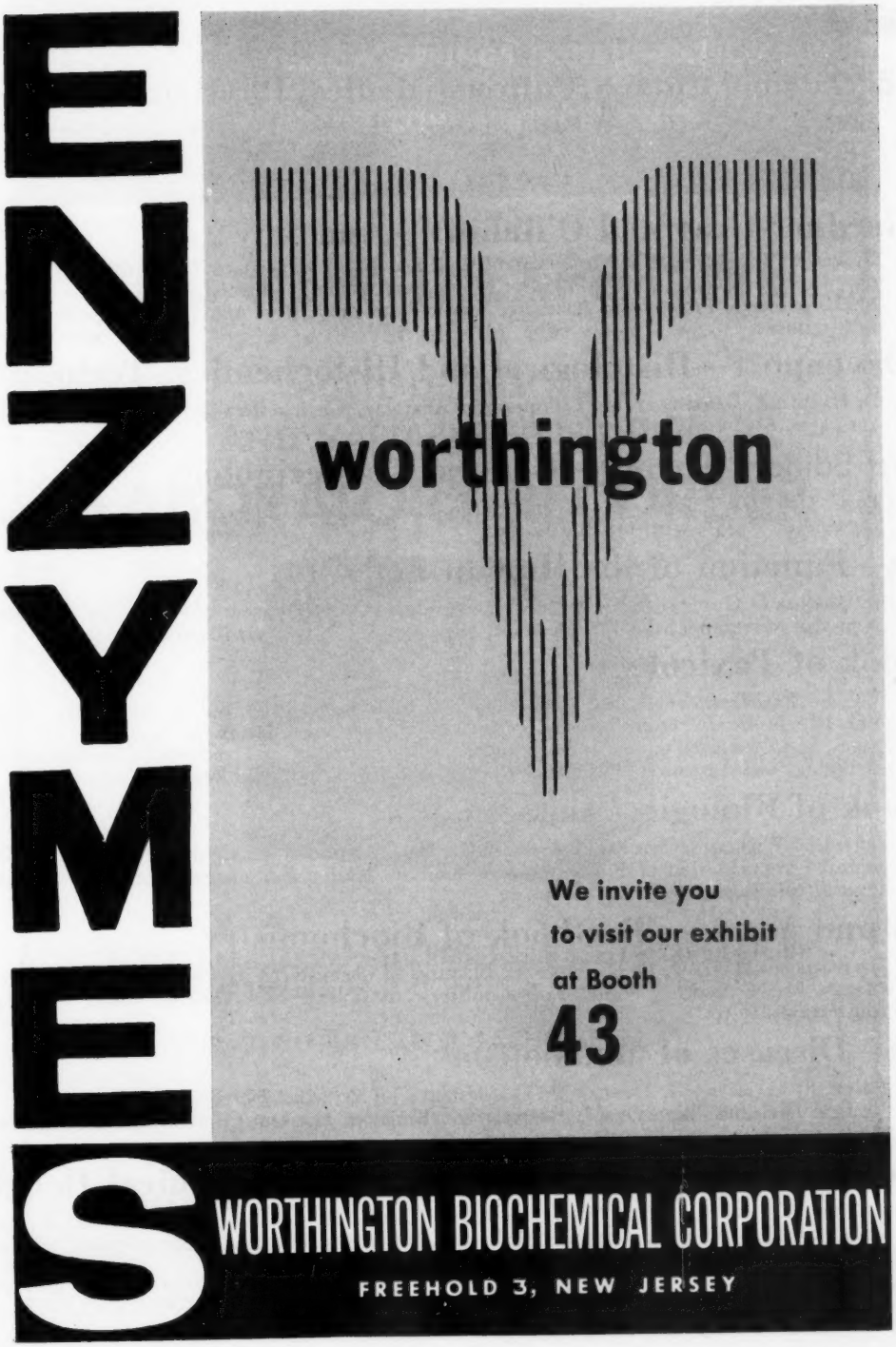
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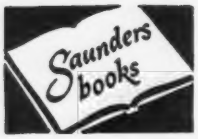

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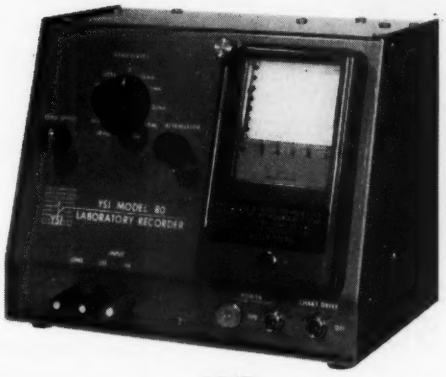

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News & Notes

Meetings

The Fifth International Congress on Nutrition, organized by the U. S. National Committee of the International Union of Nutritional Sciences and the American Institute of Nutrition, will be held in Washington, D. C., September 1–7, 1960. Eminent nutrition scientists from all over the world will participate in the Congress, the purpose of which is to increase knowledge and improve standards of nutrition in all areas.

The main feature of the scientific program will be an all-day Symposium on "World Food Needs and Food Resources." Invited speakers will discuss the following topics:

C. G. King, *Chairman*, morning session

The World's Increasing Population—James M. Bonner
Today's Food and Population Problems—Views and Programs of FAO—Binay R. Sen
Water Resources of the World—R. G. Gustavson
Prospective World Production and Distribution of Food—B. T. Shaw
Socio-Economic Factors that Limit Needed Production and Consumption—George Harrar

F. G. Boudreau, *Chairman*, afternoon session

Major Nutrition Problems Today—H. Gounelle
The Prospect of Meeting Protein Needs—W. H. Sebrell, Jr.
Food and Protection of Public Health—Abraham Horwitz
Program of the World Health Organization and Plans for the Future—M. G. Candau

The remainder of the scientific program will consist of seven half-day panel sessions, and special sessions of ten-minute papers (reporting unpublished original research) which will be presented concurrently with the panel discussions.

Panel sessions and their Moderators are:

Evaluation of Nutritional Status in Man—E. W. McHenry
Effects of Processing and Additives on Foods—W. J. Darby
Lipids in Health and Disease—K. Lang
Animal Nutrition and Food Production—D. P. Cuthbertson
Nutrition in Maternal and Infant Feeding—F. W. Clements
Proteins and Amino Acids in Nutrition—J. F. Brock
Three Hours Around the World—New Possibilities in Nutrition Research—V. Ramalingaswami

Abstracts are invited, for presentation at the Congress. They should be mailed with the registration fee of $25, not later than April 1, 1960, to: The Secretariat, Fifth International Congress on Nutrition, 9650 Wisconsin Avenue, Washington 14, D. C.

The subjects for the special sessions are:

Preservation of Foods by Ionizing Radiation
Metabolism of Fission Products
Use of Radioisotopes in Nutritional Research
Nutritional Physiology of Ruminants
New Aspects of Carbohydrate Metabolism
Micro-Nutrients in Plant and Animal Nutrition
Functional Role of Vitamins
Human Nutritional Requirements and Allowances
Animal Nutrition at the Cellular Level

Although preference will be given to research reports related to the above nine topics, 10-minute papers on other pertinent subjects will be accepted to the limit of facilities.

A full program of entertainment is being arranged for all registrants of the Congress, including a number of special events for the ladies. Social events included in the registration fee are a reception and buffet supper at the Shoreham Hotel, a classical concert with Stokowski conducting at Constitution Hall, and a folk music concert of modern Americana at the Sheraton Park Hotel.

(Continued on page lxxxii)

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(Continued from page lxxx)

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W. H. Sebrell, Jr. is in charge of the scientific program, and Floyd S. Daft is in charge of Congress social functions.

Advance registration is strongly urged. For full information, and for registration, abstract, and hotel reservation forms, write to: The Secretariat, Fifth International Congress on Nutrition, 9650 Wisconsin Avenue, Washington 14, D. C.

An International Symposium will be held in Milan, Italy, on June 2, 3 and 4, 1960 for the purpose of reviewing the present status of biological and clinical research on "Drugs Affecting Lipid Metabolism." The agenda will include four main subjects:

(1) New data on cholesterol and lipid metabolism (biosynthesis, absorption, site, catabolism, excretion, abnormal pathways).
(2) Experimental methods for the evaluation of drugs affecting cholesterol and lipid metabolism (new analytical methods and pharmacological tests).
(3) Drugs affecting cholesterol and lipid metabolism in relation to the prevention and treatment of experimental atherosclerosis.
(4) Clinical methods and therapeutical significance of drugs affecting cholesterol and lipid metabolism.

The Symposium, sponsored by the Institute of Pharmacology of the University of Milan, will be under the chairmanship of Prof. E. Trabucchi. The registration fee is $10.00.

Symposium on Uterine Implantation of Ova. A symposium devoted entirely to problems relative to the uterine implantation of ova, in animals and in the human being, will be held in Brussels, Belgium, June 24–26, 1960, just before the First International Congress of Endocrinology in Copenhagen. It is being organized jointly by the Société Nationale Française pour l'Etude de la Stérilité et de la Fécondité and the Belgian Section of the International Fertility Association. All interested persons are invited to attend. Registration: Dr. P. Wilkin, 75 rue General Lotz, Brussels, Belgium. Registration fee, Volumes of the Proceedings included, $20.00. Scientific information, Dr. J. Ferin, 42 Beukenlaan, Heverlee-Louvain, Belgium.

The American Society for Artificial Internal Organs will meet at the Pick-Congress Hotel in Chicago, Illinois on April 10 and 11, 1960.

Office of Biological Handbooks

On September 1, 1959, the Handbook of Biological Data, henceforth to be known as the Office of Biological Handbooks, was transferred from the National Academy of Sciences-National Research Council to the Federation of American Societies for Experimental Biology. A new Committee on Biological Handbooks, responsible for policy, was selected.

The first committee meeting was held November 16, 1959, in the Handbook Office at the Dupont Circle Building, 1346 Connecticut Avenue, Washington, D. C. The meeting was conducted by the Committee Chairman, Dr. Raymund L. Zwemer, Department of State. Present were Dr. Milton O. Lee and Mr. Robert H. Harvey, Federation; Dr. Chauncey D. Leake, Federation Board; Dr. J. W. Heim, Wright Air Development Center; Dr. T. C. Byerly, Department of Agriculture; Dr. George B. Brown, Sloan-Kettering Institute; Colonel Frank B. Rogers, National Library of Medicine; Dr. J. Franklin Yeager, National Institutes of Health; Dr. Dwight E. Gray, National Science Foundation; Mr. Philip L. Altman, and Mrs. Dorothy S. Dittmer, Office of Biological Handbooks.

The Committee approved the preparation of a tabular compilation on "Composition of Blood and Body Fluids," which is to be

(Continued on page lxxxiv)

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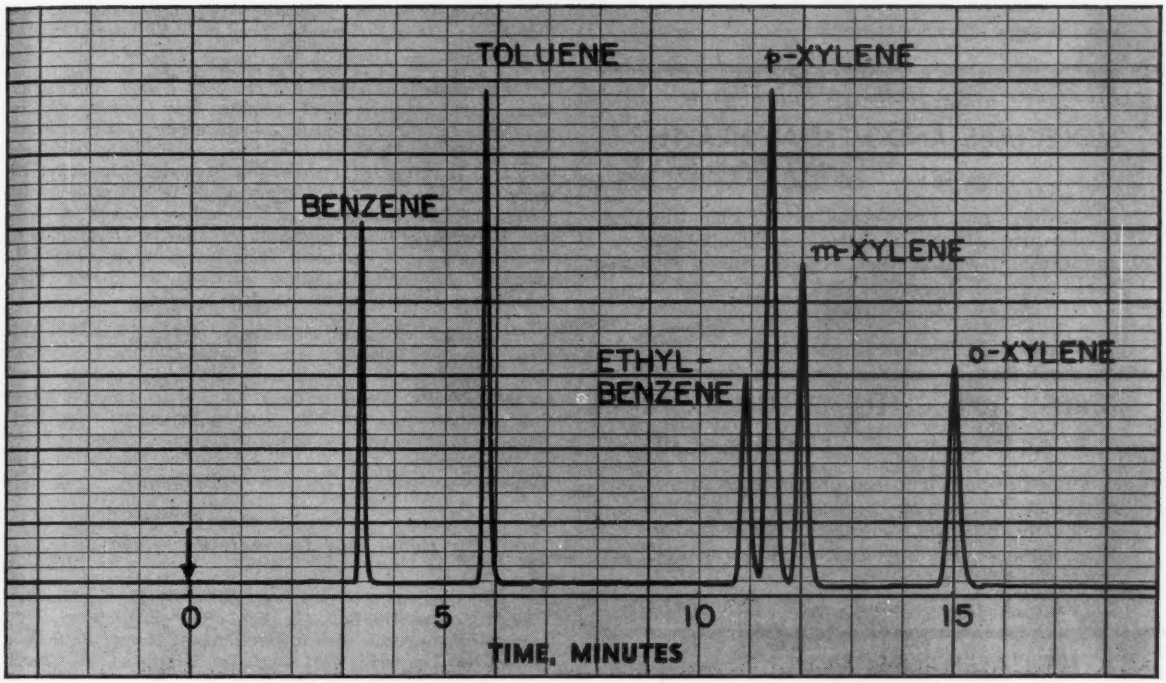

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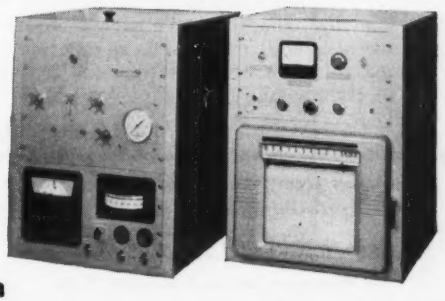

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Gibbs (Editor)

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189 Pages. Tables and Illustrations $4.75

STRESS AND CELLULAR FUNCTION
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A unified approach to the problems of injury and resuscitation with emphasis on similarities in systemic reaction to various kinds of injury, their management, and the restoration of systemic functional harmony.

255 Pages, 61 Illustrations. NEW, 1959 $7.50

ATTENUATED INFECTION:
The Germ Theory in Contemporary Perspective—Simon

A "second look" at man's inability to live with his own microbes, at clinical chemistry and cellular physiology, and what's to be done about attenuated infection.

IN ACTIVE PREPARATION

From Hahnemann Medical College

METAL BINDING IN MEDICINE—A Study of Chelation—Seven (Editor)

The first comprehensive survey on the uses of metal-binding compounds as reported by leading clinicians and researchers at a symposium at Hahnemann Medical College, May, 1959.

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(Continued from page lxxxii)

completed in the autumn of 1960. Work is then to be initiated on a Handbook on Growth. Additional projects were discussed and will be announced after the Committee has reached a definite decision on choice of project and order of publication.

La Federazione Musicale, the Federation's Amateur Chamber Music Players, will again hold forth at the April meetings in Chicago. They may be heard beginning at 5 p.m. each evening, Sunday, April 10, through Thursday, April 14, in the Conrad Hilton's Tower Room.

The Worcester Foundation for Experimental Biology, Shrewsbury, Mass., with the Department of Chemistry, *Clark University*, Worcester, Mass., and the Department of Biochemistry, College of Medicine, *University of Utah*, Salt Lake City, announce the 1960–1961 session of the Training Program for Steroid Biochemistry. Inquiries and requests for applications should be sent to either Dr. Kristen Eik-Nes, Department of Biochemistry, College of Medicine, University of Utah, Salt Lake City, Utah, or Dr. William R. Nes, Department of Chemistry, Clark University, 950 Main St., Worcester, Massachusetts. Classes start October 1, 1960. Final date for completion of application, June 1, 1960.

The American Association of University Women Educational Foundation announces fellowships open to women of the U.S.A. who hold the doctorate; or who will have fulfilled all the requirements for the doctorate, except the dissertation, by the time the fellowship year begins; or who have attained professional recognition. Application forms may be obtained beginning August 1, 1960 from: Fellowships Office, AAUW Educational Foundation, 2401 Virginia Avenue, N.W., Washington 7, D. C.

Books and Journals Received

ANATOMY AND PHYSIOLOGY OF SPEECH. Harold M. Kaplan. New York, McGraw-Hill Book Co., Inc., 1960. 365 pp. $8.50

A STEREOTAXIC ATLAS OF THE DOG'S BRAIN. Robert K. S. Lim, Chan-Nao Liu, and Robert L. Moffitt. Springfield, Ill., Charles C Thomas, 1960. 93 pp. $9.25

DIE PHYSIOLOGISCHE UHR. Erwin Bunning. Berlin, Springer-Verlag, 1958. 105 pp. DM 24,—.

EFFECT OF SMALL DOSES OF ALCOHOL ON A SKILL RESEMBLING DRIVING. G. C. Drew, W. P. Colquhoun and Hazel A. Long. London, Her Majesty's Stationery Office, 1959. 108 pp. 7s. 6d.

GLOSSARY OF METEOROLOGY. Edited by Ralph E. Huschke. Boston, American Meteorological Society, 1959. 638 pp.

HISTOCHEMISTRY, THEORETICAL & APPLIED. A. G. Everson Pearse. Boston, Little, Brown and Co., 1960. 998 pp. $20.00

INTRODUCTION TO PLANT PHYSIOLOGY. Bernard S. Meyer, Donald B. Anderson, and Richard H. Bohning. Princeton, N. J., D. Van Nostrand Co., Inc., 1960. 541 pp. $7.50

LIGHT AND PLANT GROWTH. R. Van der Veen & G. Meijer. New York, The Macmillan Co., 1960. 161 pp. $8.50

MEDICINA EXPERIMENTALIS. International Journal of Experimental Medicine. Basel, S. Karger. One volume consists of 6 numbers (two volumes annually); subscription price per volume is Swiss francs 56.—, postage included.

PSYCHOPHARMACOLOGIA. A new journal to be published irregularly at varying prices, total for the year should approximate $19.00. First issue, 1959, $2.40. Published by Springer-Verlag. May be ordered through Stechert-Hafner, Inc., New York.

STRESS AND CELLULAR FUNCTION. H. Laborit, et al. Philadelphia, J. B. Lippincott Co., 1959. 255 pp. $7.50

SYNTHESIS AND ORGANISATION IN THE BACTERIAL CELL. E. F. Gale. (The third volume in the CIBA Lectures in Microbial Biochemistry series.) New York, John Wiley & Sons, Inc., 1959. 110 pp.

THE MICROCIRCULATION. Edited by S. R. M. Reynolds and Benjamin W. Zweifach. Urbana, University of Illinois, 1959. 170 pp. $4.50

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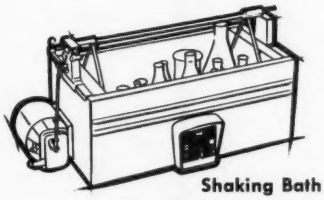

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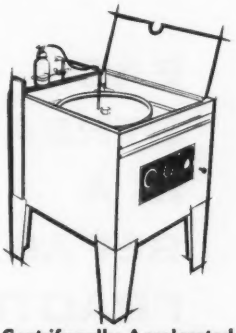

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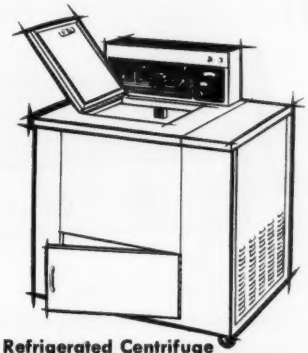

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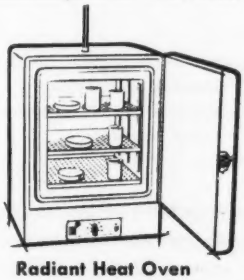

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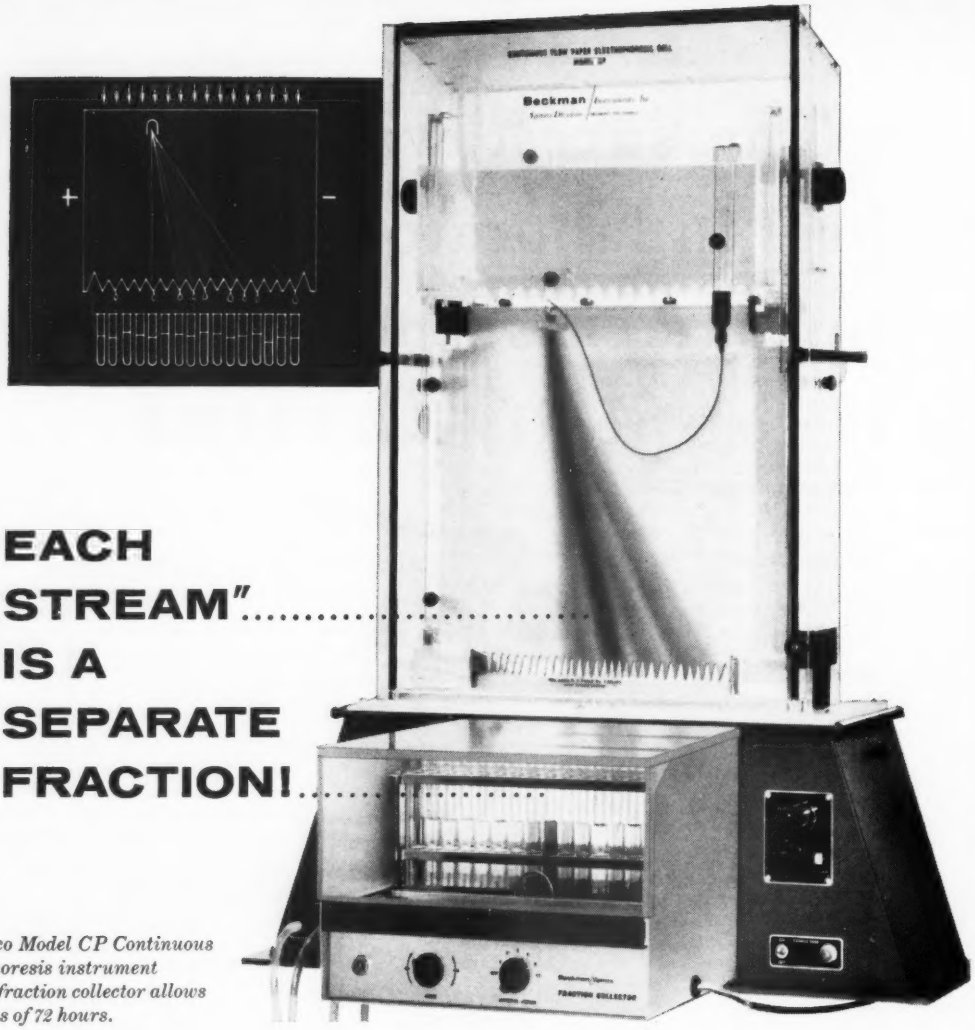

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FEDERATION OF AMERICAN SOCIETIES FOR EXPERIMENTAL BIOLOGY

44th Annual Meeting

CHICAGO, ILLINOIS, APRIL 11-15, 1960

Program

XUM

Federation of American Societies for Experimental Biology

44th Annual Meeting

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Forty-fourth Annual Meeting

CHICAGO, ILLINOIS, APRIL 11–15, 1960

Registration

Registration desks located in the Conrad Hilton Hotel will open at noon on Sunday, April 10, and will remain open until 10:00 P.M., Sunday, and from 8:00 A.M. until 5:00 P.M., Monday, April 11, through Friday, April 15. The registration fee is $10.00. The official registration badge must be worn to secure admission to all scientific sessions and other Federation activities.

There will be separate registration desks for non-professional guests who may not wish to attend scientific sessions and for industrial exhibitors and representatives of the press.

Headquarters Hotels

Most of the scientific sessions and the business meetings of the Societies will be located in the following hotels: Palmer House and Morrison (Physiology and Pharmacology), Conrad Hilton (Biochemistry and Nutrition), Pick-Congress (Pathology), Sheraton-Blackstone (Immunology) Send requests for accommodations to: Federation Housing Bureau, Room 900, 134 North LaSalle Street, Chicago 2, Illinois.

The Federation Office will be in Room 505 at the Conrad Hilton Hotel.

Scientific Sessions

Scientific sessions will be held in the five hotels: Conrad Hilton, Sheraton-Blackstone, Pick-Congress, Palmer House, and the Morrison. A complete condensed program of the sessions showing their location is printed on the double-page spread at the end of the Program.

Sessions will begin promptly at 9:00 a.m. on Monday and continue through Friday afternoon. Afternoon sessions will start at 1:30 P.M., Monday through Thursday, and at 1:00 P.M. on Friday.

Intersociety sessions have been scheduled from Monday morning through Friday afternoon. Topics of these sessions are: Atherosclerosis, Blood Clotting, Cytology, Endocrinology, Gastroenterology, Muscle, Neuropharmacology, and Tissue Culture.

The following intersociety symposia have been scheduled: Animal Behavior and Neurophysiological Correlates, Current Concepts in Lipid Metabolism, Gastroenterology, New and Neglected Hormones, Problems in Toxicology, and Radiation Protection and Recovery. See pages 426–443 for complete programs of these sessions.

Joint Session and Motion Pictures

The Joint Session of the Federation, presenting speakers on the general topic 'Pharmacological Aspects of Current Social Problems' will be held on Tuesday evening, April 12, at 8:00 P.M. in the Grand Ballroom of the Conrad Hilton Hotel. The Chairman will be Chauncey D. Leake, Ohio State University. See page 425 for complete program.

The Motion Picture session will be on Monday evening, April 11, at 8:00 P.M. in the Grand Ballroom of the Conrad Hilton Hotel. The Chairman will be Robert S. Alexander.

Abstracts and Programs

Copies of FEDERATION PROCEEDINGS, March 1960 (Part I—Abstracts, Part II—Program) will be on sale in the registration area at the Conrad Hilton Hotel. Abstracts are priced at $5.00, and Programs at $2.00 per copy.

Other Meetings

The American Society for Artificial Internal Organs will hold scientific sessions on Sunday and Monday, April 10 and 11, in the Gold Room at the Congress Hotel. A listing of these sessions is given in the double-page spread. Those desiring to attend the meetings should register at the Federation registration desk. The badge issued entitles the bearer to attend the Federation scientific sessions as well as those of the above Society.

Federation Board and Society Council Meetings

The Federation Board and the Councils and Committees of the various Societies have scheduled meetings during the week, beginning on Saturday, April 9, or Sunday, April 10. Consult the double-page spread for information on these meetings.

Society Business Meetings

Society business meetings are scheduled for Tuesday and Thursday afternoon, with the exception of Nutrition which will meet on Tuesday and Thursday morning. See program of each Society for time and location

XUM

Placement Service

The office of the Federation Placement Service will be in the Exhibition Hall at the Palmer House. It will be open for candidate registration on Sunday, April 10, from 1:00 to 5:00 P.M Registration of employers will begin Monday, April 11, at 8:15 A.M. The office will be open from 8:15 A.M. to 5:00 P.M., Monday through Thursday. Interviews will be scheduled Tuesday through Thursday during the hours listed above. The Bulletin Board Room will be open until 6:00 P.M., Monday through Thursday. Employers who wish to use the interview facilities at Chicago must be annual subscribers to the Placement Service or subscribe to the February List of Candidates. Identification forms were mailed to such subscribers about March 15, and up to three identification cards can be issued for each subscription. If the above forms are completed and returned to the Washington office before March 31, the cards identifying the authorized users of each subscription will be awaiting them at the Employers' Registration Desk.

Press Room

The Press Room will be located in Private Dining Room 2 on the third floor of the Conrad Hilton Hotel. The office will open at 9:00 A.M., Sunday, April 10. Dr. Klaus R. Unna, Chairman of the Federation Public Information Committee, has arranged for members of the Committee to assist press representatives in securing press releases and arranging press conferences. Dr. Sidney S. Negus and Mr. Ralph A. Rohweder will be in charge of the Press Room.

Exhibits

Industrial scientific exhibits will be located in the Exhibition Hall at the Conrad Hilton Hotel. Member and institutional exhibits will be in the Writing Room and in the Assembly Room foyer of the Grand Ballroom. Inspection periods will be as follows: Monday, April 11, 8:00 A.M.–5:00 P.M.; Tuesday, April 12, through Thursday, April 14, 8:45 A.M.–5:00 P.M.; Friday, April 15, 8:45 A.M.–12:00 noon. A floor plan of the exhibits area and a list of exhibitors, with a brief description of displays, will be found on pages 527–539

The official registration badge must be worn to gain admission to the exhibits.

Federation Office

The Federation Office will be in Room 505 at the Conrad Hilton Hotel, and will be staffed daily from 8:00 A.M. to 9:00 P.M.

Special Functions

Special meetings, dinners, luncheons, group breakfasts and other informal functions which have been scheduled through the Federation Office are listed in the double-page spread. Tickets for such functions will be on sale in the registration area, Conrad Hilton Hotel.

Chamber Music

The Federation Amateur Chamber Music Players will meet at 5:00 P.M. and every evening, Sunday, April 10, through Thursday, April 14, in the Upper Tower of the Conrad Hilton Hotel. Dr. Waldo E. Cohn is in charge of arrangements.

Ladies Hospitality Committee

The Hospitality Committee, under the chairmanship of Mrs. Dwight J. Ingle, has planned a full schedule of activities for wives of member and non-member scientists. The Hospitality Lounge, Rooms 512–513, Conrad Hilton Hotel, will be open for ladies' registration on Sunday, April 10, noon to 10:00 P.M., and on Monday, April 11, 8:00 A.M. to 5:00 P.M. From Tuesday through Friday, ladies will register in the main registration area in the Conrad Hilton. Registration for ladies is $2.00 The Hospitality Committee invites all women registrants to meet for coffee in the Hospitality Lounge on Monday, April 11, between 10:00 A.M. and noon. For schedule of hospitality activities, see page 526.

Message Center: Information Desk

A message and information center will be located in the registration area, Conrad Hilton Hotel, for distribution of mail and exchange of personal messages. The visible index of registrants will also be in this area. These facilities will be open daily from 8:00 A.M. to 5:00 P.M.

Lost and Found

Articles left in session rooms will be brought to the Federation Office, Room 505, Conrad Hilton Hotel, where owners may call for them.

1960 Federation Program

Joint Session

PHARMACOLOGICAL ASPECTS OF CURRENT SOCIAL PROBLEMS

TUESDAY, April 12, 8:00 P.M.—CONRAD HILTON, GRAND BALLROOM

Chairman: CHAUNCEY D. LEAKE. *The Ohio State University, Columbus*

1. Control of pollution of airs and waters. Herbert E. Stokinger. *PHS Occupational Health Field HQ, Cincinnati, Ohio.*
2. Radiation protection. HARVEY M. PATT. *Argonne National Laboratories, Lemont, Ill.*
3. Control of biological fertility. NATHAN MILLMAN. *Ortho Foundation, Raritan, N. J.*
4. Pest control. THOMAS BURNETT. *Entomological Laboratories, Belleville, Ontario, Canada.*
5. Control of toxicity in foods, drugs and cosmetics. ARNOLD J. LEHMAN. *Food and Drug Administration, Washington, D. C.*

Motion Pictures

MONDAY, April 11, 8:00 P.M.—CONRAD HILTON, GRAND BALLROOM

Chairman: R. Alexander

6. Brain and social behavior in the monkey. JOSE M. R. DELGADO. *Yale Univ.* (Physiol.)
7. Failure of intermanual transfer of training in corpus callosum-sectioned chimpanzees. RONALD E. MYERS (intr. by DAVID MCK. RIOCH). *Walter Reed Army Inst. of Res.* (Physiol.)
8. Action of adrenaline and eserine on adult mammalian brain cultures. R. S. GEIGER, C. ADACHI AND M. STEWART (intr. by P. BAILEY). *Univ. of Illinois.* (Physiol.)
9. Adrenergic substances of adrenal and of nonadrenal origin. IRENE E. LOEWENFELD. *Columbia Univ.* (Physiol.)
10. High speed cinephotomicrography of hemodynamics. EDWARD H. BLOCH. *Western Reserve Univ.* (Immunol.)
11. Cellular changes leading to formation of plasma cells. B. BRYANT AND Y. OSADA (intr. by J. B. HAMILTON). *State Univ. of New York.* (Physiol.)
12. Influence of anticoagulants on the leucocytic sticking reaction within rabbit ear chambers injured by heat. FRED ALLISON, JR. AND MARGIE G. LANCASTER (intr. by C. C. RANDALL). *Univ. of Mississippi.* (Pathol.)
13. Effects of x-rays on normal and leukemic human lymphocytes. ROBERT SCHREK. *VA Hosp., Hines, Ill.* (Pathol.)
14. Time lapse cinematography of lymphoagglutination and lympholysis produced by sera from homografted animals. PAUL I. TERASAKI, JACK A. CANNON AND WILLIAM P. LONGMIRE, JR. (intr. by ROY L. WALFORD). *Univ. of California.* (Pathol.)
15. Cinemicrographic observations of immediate-type hypersensitivity reactions of iris epithelium. C. D. DUKES, H. H. FOX AND L. J. GIRARD (intr. by K. L. BURDON). *Baylor Univ.* (Immunol.)
16. Effects of methaminodiazepoxide HCl on 'septal rats'. WILLIAM SCHALLEK AND NAITAN JEW.* *Hoffmann-La Roche.* (Pharmacol.)

Intersociety Sessions

Monday Morning, April 11, 9:00 a.m.

Tissue Culture I: General

MON. A.M.—BLACKSTONE, CRYSTAL BALLROOM

Chairman: W. F. Scherer

9:00 **17.** Biosynthesis of cyst(e)ine in mammalian cell cultures. VANCE I. OYAMA,* HARRY EAGLE AND KARL A. PIEZ. *Natl. Insts. of Health.* (Biochem.)

9:15 **18.** Sustained growth of human and animal cells in a protein-free environment. HARRY EAGLE. *Natl. Insts. of Health.* (Immunol.)

9:30 **19.** A simple chemostat for growth of mammalian cells. EDWARD P. COHEN* AND HARRY EAGLE. *Natl. Insts. of Health.* (Pharmacol.)

9:45 **20.** A serumless medium for continuous cultivation of cell of normal and malignant origin. ALFRED A. TYTELL AND ROBERT E. NEUMAN.* *Merck.* (Biochem.)

10:00 **21.** Small molecule requirements for clonal growth of single diploid Chinese hamster cells. RICHARD G. HAM (intr. by T. T. PUCK). *Univ. of Colorado.* (Immunol.)

10:15 **22.** Separation from horse serum of growth promoting activity for tissue culture cells by dialysis. DON P. METZGAR, JR.* AND MERWIN MOSKOWITZ. *Purdue Univ.* (Immunol.)

10:30 **23.** Macromolecular growth requirements of single, diploid, mammalian cells. H. W. FISHER,* R. G. HAM* AND T. T. PUCK. *Univ. of Colorado.* (Immunol.)

10:45 **24.** Selective techniques in the culture of differentiated mammalian cells. GORDON SATO AND STANLEY MILLS (intr. by L. LEVINE). *Brandeis Univ.* (Immunol.)

11:00 **25.** Antibody specificity of mammalian cells grown in vitro. T. T. PUCK AND M. ODA.* *Univ. of Colorado.* (Immunol.)

11:15 **26.** Adaptation of chick embryo cultures to immunological studies. R. F. RUTH (intr. by T. MAKINODAN). *Carnegie Inst.* (Immunol.)

11:30 **27.** Hormonal requirements of guinea pig mammary tissue in vitro. GEORGE C. GERRITSEN (intr. by LESTER F. WOLTERINK). *Michigan State Univ.* (Physiol.)

11:45 **28.** Enzyme patterns and function of bovine mammary cells in tissue culture. K. E. EBNER,* C. R. HOOVER,* ELIZABETH C. HAGEMAN* AND B. L. LARSON. *Univ. of Illinois.* (Biochem.)

Endocrine I: Thyroid

MON. A.M.—MORRISON, COTILLION ROOM

Chairman: Roy Hertz

9:00 **29.** Solubility of L-thyroxine (Na) in ethanol-water mixtures at 25°C. H. E. EVERT (intr. by JOSEPH G. BENTON). *State Univ. of New York.* (Pharmacol.)

9:15 **30.** Chromatography of iodinated amino acids on sulfonated polystyrene resins. SAMUEL R. LERNER (intr. by J. R. ELLIOTT). *VA Hosp. and Baylor Univ.* (Physiol.)

9:30 **31.** Protein binding of substances related to thyroxine. L. K. CHRISTENSEN (intr. by KURT J. ISSELBACHER). *Massachusetts Gen. Hosp.* (Biochem.)

9:45 **32.** Effect of *n*-butyl 4-hydroxy-3:5-di-iodobenzoate (BHDB) on thyroid hormones. EUNICE V. FLOCK AND JESSE L. BOLLMAN.* *Mayo Clinic.* (Biochem.)

10:00 **33.** Chemical identification of iodine-containing compounds in human serum. TSUYOSHI KONO* AND E. B. ASTWOOD. *New England Ctr. Hosp. and Tufts Univ.* (Physiol.)

10:15 **34.** Proteolysis of phosphate-purified thyroglobulin. A. D. LITONJUA (intr. by N. BUCHER). *Massachusetts Gen. Hosp.* (Physiol.)

10:30 **35.** Genetic selection and thyroid activity. JOSEPH H. SUNDER (intr. by CAMPBELL MOSES). *Univ. of Pittsburgh.* (Physiol.)

10:45 **36.** Effect of thyroxine on its own turnover time. G. W. PIPES, B. N. PREMACHANDRA AND C. W. TURNER (intr. by HOMER E. DALE). *Univ. of Missouri.* (Physiol.)

11:00 **37.** Effect of administration of L-thyroxine on N-demethylating activity in normal and morphine-treated rats. JOSEPH COCHIN AND LOUIS SOKOLOFF.* *Natl. Insts. of Health.* (Pharmacol.)

Muscle I

MON. A.M.—MORRISON, PARLORS B AND C

Chairman: W. F. H. M. Mommaerts

9:00 **38.** The myosin creatine kinase system. J. BOTTS AND M. J. STONE.* *Dartmouth Coll.* (Physiol.)

9:15 **39.** Some properties of AET-treated myosin B ATPase. K. HOTTA* AND M. MORALES. *Dartmouth Coll.* (Biochem.)

9:30 **40.** Reactions of actin-associated nucleotide. T. HAYASHI AND K. T. TSUBOI. *Columbia Univ. and Marine Biol. Lab.* (Physiol.)

9:45 **41.** Quantity of chemical change in muscle associated with shortening and work. W. F. H. M. MOMMAERTS AND K. SERAYDARIAN. *Univ. of California.* (Physiol.)

10:00 **42.** Metabolic-electrical interrelationships of frog muscles. L. G. ABOOD, K. KOKETSU* AND K. NODA.* *Univ. of Illinois.* (Physiol.)

10:15 **43.** Creatine, creatinine and creatine phosphate in heart hypertrophy. E. C. GANGLOFF,* I. L. HEMMINGS,* J. W. WOTRING, JR.,* J. S. GRIFFITH* AND R. F. KRAUSE. *West Virginia Univ.* (Biochem.)

10:30 **44.** Metabolic studies on rat muscle fibers. R. D.

PETERSON, C. H. BEATTY, H. H. DIXON* AND E. S. WEST. *Univ. of Oregon.* (Biochem.)

10:45 **45.** Effect of glucagon on amino acid metabolism. R. M. BOCEK,* R. D. PETERSON AND C. H. BEATTY. *Univ. of Oregon.* (Physiol.)

11:00 **46.** Experimental muscular dystrophy induced in rats by dimethyl-*p*-phenylenediamine. G. JASMIN AND P. BOIS.* *Univ. of Montreal and Univ. of Ottawa.* (Physiol.)

11:15 **47.** Characteristic muscle amino acids and peptides in inherited muscular dystrophy of the chicken. D. W. PETERSON,* E. W. MARTIN, A. L. LILYBLADE, J. B. ALLRED AND V. S. ASMUNDSON. *Univ. of California.* (Nutr.)

Monday Afternoon, April 11, 1:30 p.m.

SYMPOSIUM: Radiation Protection and Recovery

MON. P.M.—MORRISON, TERRACE CASINO

Chairman: Alexander Hollaender

1:30 **48.** Introductory remarks. Studies on microorganisms, including nutritional aspects. ALEXANDER HOLLAENDER. *Oak Ridge Natl. Lab.*

1:45 **49.** Protection of mammalian tissues. J. MAISIN AND D. G. DOHERTY. *Armed Forces Inst. of Pathol.* and *Oak Ridge Natl. Lab.*

2:15 **50.** Bone marrow transplantation with emphasis on genetic compatibility. ELIZABETH S. RUSSELL. *Roscoe B. Jackson Mem. Lab.*

2:45 **51.** Hormonal effects on development and action of lymphatic tissue. ROLAND K. MEYER. *Univ. of Wisconsin.*

3:15 **52.** Recent developments of radiation immunology. T. MAKINODAN. *Oak Ridge Natl. Lab.*

Cytology I

MON. P.M.—CONGRESS, FRANCIS I ROOM

Chairman: Donald W. King, Jr.

1:30 **53.** Comparison of chromosome number and morphology in twenty-eight lines of mammalian cells. J. JOHANNA CLAUSEN* AND JEROME T. SYVERTON. *Univ. of Minnesota.* (Immunol.)

1:45 **54.** Isolation and properties of amphibian egg nucleoli. G. T. CROUSE AND F. J. FINAMORE (intr. by F. R. HUNTER). *Southern Illinois Univ.* (Physiol.)

2:00 **55.** Continuity and rate of DNA synthesis in ascites tumor cells. J. L. EDWARDS AND ARTHUR L. KOCH (intr. by PHILIP MCMASTER). *Univ. of Florida.* (Pathol.)

2:15 **56.** Incorporation of intact heterologous DNA into strain L fibroblasts. DONALD W. KING AND KLAUS G. BENSCH*. *Yale Univ.* (Pathol.)

2:30 **57.** Comparative effects of fast neutrons and x-rays on marrow DNA in mice. W. E. DAVIS, JR. AND L. J. COLE (intr. by M. S. SILVERMAN). *U. S. Naval Def. Lab.* (Immunol.)

2:45 **58.** Status of soluble RNA in mammalian cells. E. L. HESS, A. M. HERRANEN* AND S. E. LAGG.* *Worcester Fndn.* (Biochem.)

3:00 **59.** Cytidine labeling of abnormally enlarging cells. R. A. MCGRATH (intr. by C. C. CONGDON). *Oak Ridge Natl. Lab.* (Pathol.)

3:15 **60.** Changes in nucleoproteins of the cell in normal and abnormal mitosis. ROBERT LOVE, HIROSHI KOBAYASHI* AND T. P. BHARADWAJ.* *Natl. Insts. of Health.* (Pathol.)

3:30 **61.** Proliferation of tumor cells in rat liver and its relationship to transformation of deoxycytidylic acid. SILVIO FIALA, ANNA FIALA AND WALTER GLINSMAN (intr. by E. E. SPROUL). *Columbia Univ. and Francis Delafield Hosp.* (Pathol.)

3:45 **62.** Bacterial polysaccharide and cortisol in acute leukemia in the rat. CLAUDE R. THOMAS* AND RUSSELL S. JONES. *Univ. of Utah.* (Pathol.)

4:00 **63.** Endoplasmic reticulum and glucose-6-phosphatase activity. PAUL R. GROSS, WILLIAM PEARL* AND GILLES COUSINEAU.* *New York Univ.* (Physiol.)

4:15 **64.** Adenylate kinase of nuclei from normal and neoplastic tissues. LEO A. MILLER* AND ANNA GOLDFEDER. *New York Univ.* (Physiol.)

Endocrine II: Insulin—Glucagon

MON. P.M.—MORRISON, COTILLION ROOM

Chairman: F. G. Henderson

1:30 **65.** Effect of insulin on amino acid tolerance. T. HERNANDEZ AND R. A. COULSON. *Louisiana State Univ.* (Physiol.)

1:45 **66.** A non-transport effect of insulin on protein synthesis. M. TOYODA* AND S. P. BESSMAN. *Univ. of Maryland.* (Biochem.)

2:00 **67.** Insulin effect on muscle potassium flux. KENNETH L. ZIERLER. *Johns Hopkins Univ.* (Physiol.)

2:15 **68.** Extent of conversion of C^{14}-lactate and C^{14}-pyruvate to glucose in humans. R. C. DEMEUTTER AND W. W. SHREEVE (intr. by I. L. SCHWARTZ). *Brookhaven Natl. Lab.* (Physiol.)

2:30 **69.** Insulin bio-assay by glycogen deposition in a single rat diaphragm. D. C. JESSUP AND G. S. WIBERG (intr. by L. I. PUGSLEY). *Dept. of Natl. Health and Welfare, Ottawa.* (Biochem.)

2:45 **70.** Insulin-like activity of normal human sera. Paul M. BEIGELMAN (intr. by S. SOBIN). *Univ. of Southern California.* (Physiol.)

3:00 **71.** Increase in serum insulin-like activity in rats with growth. J. OYAMA* AND R. L. GRANT. *Food and Drug Admin.* (Biochem.)

3:15 **72.** Site of origin of hyperglycemic substances found

in pancreato-duodenal blood. J. W. Weber, J.-P. Colombo, D. Kanameishi and P. P. Foà (intr. by J. A. Smith). *Chicago Med. Sch.* (Physiol.)

3:30 **73.** Changes in output per minute of pancreatic venous insulin-like activity following hyperglycemia in the dog. R. H. Egdahl and H. L. Goldberg.* *Med. Coll. of Virginia.* (Physiol.)

3:45 **74.** Insulin sensitization to k-strophantin action. V. W. Adamkiewicz (intr. by Edouard Pagé). *Univ. of Montreal.* (Physiol.)

4:00 **75.** Effect of hypophysectomy on insulin sensitivity of the chicken. T. Koike,* Y. Matsumura* and S. Lepkovsky. *Univ. of California.* (Nutr.)

4:15 **76.** Metabolic studies of tissues from pregnant, alloxan-diabetic rats. Dwain D. Hagerman and Frederica M. Wellington.* *Harvard Univ.* (Biochem.)

Endocrine III: Thyroxin—Iodination

Mon. p.m.—Morrison, Venetian Room

Chairman: R. L. Greif

1:30 **77.** Mechanism of iodination reactions in thyroid glands. Nicholas M. Alexander (intr. by Donald L. Buchanan). *VA Hosp., West Haven, and Yale Univ.* (Biochem.)

1:45 **78.** Kinetics of radioiodine uptake in mice and rats. S. H. Wollman and F. E. Reed.* *Natl. Insts. of Health.* (Physiol.)

2:00 **79.** Iodine containing particles in thyroid tissue. David W. E. Smith* and J. E. Rall. *Natl. Insts. of Health.* (Physiol.)

2:15 **80.** Effect of thyroxin pretreatment on organic binding of I^{131} by incubated guinea pig thyroid segments. C. Fortier and W. J. Schindler.* *Baylor Univ.* (Physiol.)

2:30 **81.** Difference in metabolic response between normal and hyperthyroid liver slices to a change in surrounding medium. M. A. Spirtes and Betsy Eaton.* *Hahnemann Med. Coll.* (Pharmacol.)

2:45 **82.** Thyroxin stimulation of amino acid incorporation into protein. Louis Sokoloff, Gladys Deibler,* Phyllis Campbell* and Seymour Kaufman.* *Natl. Insts. of Health.* (Physiol.)

3:00 **83.** Formation of iodotyrosines in thyroid mitochondria and microsomes. Winton Tong* and I. L. Chaikoff. *Univ. of California.* (Physiol.)

3:15 **84.** Time studies on goitrogenic effect of thyroxin. E. Schonbaum* and E. A. Sellers. *Univ. of Toronto.* (Physiol.)

3:30 **85.** Thyroid hormone induced copper discharge in the tadpole. H. J. Lipner, Tony J. Miller* and Mary C. Muntz.* *Florida State Univ.* (Physiol.)

Muscle II

Mon. p.m.—Morrison, Parlors B & C

Chairman: John Gergely

1:30 **86.** Preparation and purification of embryonic chick myosin. D. S. Love (intr. by E. G. Boettiger). *Univ. of Connecticut.* (Physiol.)

1:45 **87.** Properties of two fractions of myosin A isolated by chromatography. J. Brahms (intr. by M. F. Morales). *Dartmouth Coll.* (Physiol.)

2:00 **88.** Accelerating effect of H meromyosin on polymerization of actin. A. Martonosi (intr. by J. Gross). *Harvard Univ.* (Physiol.)

2:15 **89.** A new model of the structure of myosin and actin fibers, of the ultrastructure of the sarcomere, and mechanism of muscular relaxation. M. D. Stern (intr. by S. Krop). *Ethicon.* (Physiol.)

2:30 **90.** Myosin of frog's sartorius at rest, during contraction and in fatigue. M. W. Seraydarian and E. B. Williams.* *UCLA.* (Physiol.)

2:45 **91.** Biosynthesis of a muscle relaxing agent. F. N. Briggs and F. Fuchs.* *Tufts Univ.* (Physiol.)

3:00 **92.** Participation of calcium ions in relaxing factor system (RFS) of muscle. J. Gergely and C. J. Parker, Jr.* *Harvard Univ.* (Biochem.)

3:15 **93.** Participation of charge transfer complexes in smooth muscle contraction. B. Kaminer (intr. by A. Szent-Gyorgyi). *Marine Biol. Lab.* (Biochem.)

3:30 **94.** Titration curves of frog muscle in vivo. H. R. Catchpole, M. B. Engel* and N. R. Joseph. *Chicago Prof. Coll.* (Physiol.)

Neuropharmacology I

Mon. p.m.—Palmer House, Grand Ballroom

Chairman: Keith F. Killam

1:30 **95.** Pernicious preening test for evaluation of psychotrophic drugs. J. Gordon Wilfon,* John F. Pauls* and Alexander Kandel. *Smith Kline & French.* (Pharmacol.)

1:45 **96.** Controlled studies on pernicious preening test in mice. John F. Pauls,* J. Gordon Wilfon* and Alexander Kandel. *Smith Kline & French.* (Pharmacol.)

2:00 **97.** Effects of certain central depressants on mice. James E. Weaver* and T. S. Miya. *Purdue Univ.* (Pharmacol.)

2:15 **98.** Nonreversibility of appetitive characteristics of intracranial stimulation. D. A. Brodie, J. L. Malis* and O. M. Moreno.* *Merck.* (Pharmacol.)

2:30 **99.** Drug effects on behavior of self-stimulation monkeys. J. L. Malis,* D. A. Brodie and O. M. Moreno.* *Merck.* (Pharmacol.)

2:45 **100.** Self-selected brain stimulation reward thresholds modified by drugs. Larry Stein (intr. by J. Seifter). *Wyeth.* (Pharmacol.)

3:00 **101.** Bioassay of kanamycin auditory toxicity. V. G. Vernier and F. R. Alleva.* *Merck.* (Pharmacol.)

3:15 **102.** Anatomical substratum of behavioral and convulsive phenomena produced by methionine sulfoximine in the cat. Meyer Proler* and Peter Kellaway. *Baylor Univ.* (Physiol.)

3:30 **103.** Effect of meprobamate on conditioned antidiuretic and electrolyte retention responses. S. A. Corson, E. O'Leary Corson,* R. A. Dykman,* J. E. Peters,* W. G. Reese* and L. D. Seager.* *Yale Univ. and Univ. of Arkansas.* (Physiol.)

3:45 **104.** Effect of a new antitussive on the tracheal-clamping reaction. Paul S. Guth and Marvin Goldenberg (intr. by J. C. Scott). *Hahnemann Med. Coll.* (Physiol.)

Tuesday Morning, April 12, 9:00 a.m.

SYMPOSIUM: Animal Behavior and Neurophysiological Correlates

TUES. A.M.—MORRISON, TERRACE CASINO

Chairman: Peter B. Dews

9:00 **105.** Introduction. PETER B. DEWS. *Harvard Med. School.*

:05 **106.** Patterns of single unit discharge in visual cortex of cat during sleep and waking. EDWARD V. EVARTS. *Natl. Insts. of Health.*

9:35 **107.** Discussion—DAVID H. HUBEL. *Harvard Med. School.*

9:50 Discussion from the floor

10:00 **108.** Behavioral changes associated with alterations in concentrations of brain neurohormones. WILLIAMINA A. HIMWICH. *Galesburg State Res. Hosp.*

10:35 **109.** Discussion—ERMINIO COSTA. *Galesburg State Res. Hosp.*

10:50 Discussion from the floor

11:05 **110.** Some motivational effects of brain stimulation and drugs. NEAL MILLER. *Yale Univ.*

11:35 **111.** Discussion—CHARLES B. FERSTER. *Indiana Univ.*

11:50 Discussion from the floor

Gastroenterology I

TUES. A.M.—CONGRESS, GOLD ROOM

Chairman: Harold L. Stewart

9:00 **112.** Electron microscopic appearance of lipids in jejunal mucosa. WILBUR A. THOMAS AND ROBERT M. O'NEAL. *Washington Univ.* (Pathol.)

9:15 **113.** Histologic method of demonstrating intestinal fat absorption in man. CHERILL PARMENTIER, PATRICIA PHELPS AND CYRUS E. RUBIN (intr. by ROBERT PRIEST). *Univ. of Washington.* (Pathol.)

9:30 **114.** Labeling of phosphatidic acids during absorption of fatty acids. JOHN M. JOHNSTON AND JAMES H. BEARDEN (intr. by H. C. TIDWELL). *Univ. of Texas.* (Nutr.)

9:45 **115.** Effect of dietary deprivation and alcohol on absorption of xylose from the rat small intestine. M. D. SMALL,* S. N. GERSHOFF,* S. A. BROITMAN,* P. L. COLON* AND N. ZAMCHECK. *Boston City Hosp., Harvard Sch. of Public Health and Boston Univ.* (Pathol.)

10:00 **116.** Intestinal absorption and urinary excretion of xylose in rats fed reduced protein and thyroxine or alcohol. S. A. BROITMAN,* M. D. SMALL,* J. J. VITALE AND N. ZAMCHECK. *Boston City Hosp., Harvard Sch. of Public Health, and Boston Univ.* (Pathol.)

10:15 **117.** Intestinal carcinoma in rats fed N-2, 7-fluorenylenebisacetamide. HAROLD L. STEWART, KATHERINE C. SNELL,* HAROLD P. MORRIS AND BILLIE P. WAGNER.* *Natl. Insts. of Health.* (Pathol.)

10:30 **118.** Succinic dehydrogenase in neoplastic lesions of the human large intestine and the hamster cheek pouch. LEE W. WATTENBERG. *Univ. of Minnesota.* (Pathol.)

10:45 **119.** Leucine incorporation into cell types of colonic mucosa. MARTIN LIPKIN AND THOMAS P. ALMY.* *Bellevue Hosp.* (Physiol.)

11:00 **120.** Alterations in functions of the stomach produced by local hypothermia. WARD O. GRIFFEN, JR.,* ALDO CASTANEDA,* D. M. NICOLOFF* AND OWEN H. WANGENSTEEN. *Univ. of Minnesota.* (Pathol.)

11:15 **121.** Absorption of L-phenylalanine by everted intestinal sacs. R. P. SPENCER AND A. H. SAMIY (intr. by S. WARREN). *New England Deaconess Hosp., Peter Bent Brigham Hosp. and Harvard Univ.* (Pathol.)

11:30 **122.** Significance of comparative Sr^{85} and Ca^{45} plasma values in man. JOSEPH SAMACHSON AND HERTA SPENCER (intr. by HENRY HAIMOVICI). *Montefiore Hosp.* (Physiol.)

11:45 **123.** Short-term radioisotope studies of intestinal glucose absorption in the rat. J. MARTYN BAILEY,* JOSEPH H. ROE AND CHOONG H. WOO.* *George Washington Univ.* (Nutr.)

Cytology II

TUES. A.M.—CONGRESS, FRANCIS I ROOM

Chairman: Cyrus C. Erickson

9:00 **124.** Effect of audiogenic stress on growth of methylcholanthrene induced tumors in mice. L. W. SMITH AND F. LAZERE.* *Waldemar Med. Res. Fndn.* (Pathol.)

9:15 **125.** Exercise, fatigue and tumor growth. S. HOFFMAN,* K. E. PASCHKIS AND A. CANTAROW. *Jefferson Med. Coll.* (Physiol.)

9:30 **126.** Mechanism of immune lysis of tumor cells. ANTON LINDNER. *VA Hosp. and Univ. of Buffalo.* (Pathol.)

9:45 **127.** Prevention of toxicity of nitrogen mustard. L. P. WHITE (intr. by SIDNEY FARBER). *Children's Cancer Res. Fndn.* (Pathol.)

10:00 **128.** Chemotherapy of canine cancer with dihydro E-73. JOHN R. MCCOY (intr. by R. B. STEBBINS). *Rutgers Univ.* (Pathol.)

10:15 **129.** Effects of cytoxan on DNA synthesis and the mitotic cycle in L4946 mouse leukemia. JESSE E. SISKEN,* ERVIN KOVACS* AND R. KINOSITA. *City of Hope Med. Ctr.* (Pathol.)

10:30 **130.** Role of mycoplasma (PPLO) in the regression of Murphy-Sturm lymphosarcoma in the rat. E. VIRGIL HOWELL* AND RUSSELL S. JONES. *Univ. of Utah.* (Pathol.)

10:45 **131.** Correlation between cytotoxicity in human cell culture and in vivo anticancer activity of purine analogs. G. J. DIXON,* H. E. SKIPPER AND F. M. SCHABEL, JR. *Southern Res. Inst.* (Pathol.)

11:00 **132.** Aminopterin-resistance in non-leukemic rats. P. G. REIZENSTEIN (intr. by E. P. CRONKITE.) *Brookhaven Natl. Lab. and Karolinska Hosp., Stockholm.* (Physiol.)

11:15 **133.** Effects of chlorpromazine on a transplantable mouse mastocytoma. L. S. GOTTLIEB,* M. HAZEL,* S. BROITMAN* AND N. ZAMCHECK. *Mallory Inst. of Pathol. and Tufts, Boston, and Harvard Univs.* (Pathol.)

11:30 **134.** Serum glycoprotein response in tumor-bearing rats on a protein-free diet. HENRY E. WEIMER AND HISAKO NISHIHARA.* *Univ. of California.* (Pathol.)

11:45 **135.** Transplantability changes of a mouse tumor after passage through tolerant homologous recipients. CARLOS MARTINEZ, HARVEY KELMAN* AND ROBERT A. GOOD. *Univ. of Minnesota.* (Physiol.)

Endocrine IV: Insulin

TUES. A.M.—MORRISON, COTILLION ROOM

Chairman: Rachmiel Levine

9:00 **136.** Effects of alloxan diabetes on the two glycolytic pathways in rat diaphragm. WALTER N. SHAW, ALBERT I. WINEGRAD AND F. D. W. LUKENS (intr. by CARL BACHMAN). *Univ. of Pennsylvania.* (Biochem.)

9:15 **137.** Glucose uptake by isolated, perfused heart from hypophysectomized rats; effects of insulin and growth hormone. M. J. HENDERSON,* H. E. MORGAN* AND C. R. PARK. *Vanderbilt Univ.* (Physiol.)

9:30 **138.** Glucose uptake by chick embryo hearts in vitro. G. GUIDOTTI,* D. KANAMAISHI* AND P. P. FOÀ. *Chicago Med. Sch.* (Physiol.)

9:45 **139.** Humoral character of hypoglycemic effect of muscular work. M. S. GOLDSTEIN. *Michael Reese Hosp.* (Physiol.)

10:00 **140.** Insulin effects on turnover and oxidation of glucose in the human as studied with C^{14} glucose. G. L. SEARLE, L. R. BRISTOW* AND W. A. REILLY.* *VA Hosp., San Francisco.* (Physiol.)

10:15 **141.** Effect of insulin on glucose production. A. DUNN,* R. STEELE,* N. ALTSZULER, D. T. ARMSTRONG,* J. S. BISHOP* AND R. C. DE BODO. *New York Univ. and Brookhaven Natl. Lab.* (Physiol.)

10:30 **142.** Action of insulin on adipose tissue from hyperthyroid rats. JEAN HIMMS HAGEN (intr. by J. DOUPE). *Univ. of Manitoba.* (Physiol.)

10:45 **143.** Glucose production and plasma non-esterified fatty acid levels following insulin administration. D. T. ARMSTRONG,* R. STEELE, N. ALTSZULER, A. DUNN,* J. S. BISHOP* AND R. C. DE BODO. *Brookhaven Natl. Lab. and New York Univ.* (Biochem.)

11:00 **144.** Mannose and glucose metabolism by adipose and liver tissues of normal and diabetic rats. F. C. WOOD, JR.,* G. F. CAHILL, JR.* AND A. E. RENOLD. *Harvard Univ.* (Physiol.)

11:15 **145.** Effect of insulin on hepatic carbohydrate and fat metabolism in normal and depancreatized dogs. W. C. SHOEMAKER, J. ASHMORE, P. J. CARRUTHERS, I. C. POWERS, M. SCHULMAN AND H. FEINBERG (intr. by H. NECHELES). *Michael Reese Hosp.* (Physiol.)

11:30 **146.** In vitro effect of chromium (III) on glucose uptake of fat tissue. W. MERTZ* AND K. SCHWARTZ. *Natl. Insts. of Health.* (Nutr.)

11:45 **147.** Duration of glucagon action. JOSEPH E. SOKAL. *Roswell Park Mem. Inst.* (Physiol.)

12:00 **148.** Influence of anabolic steroids on protein catabolic action of glucagon. STANLEY R. GLASSER AND JOSPEH L. IZZO (intr. by W. S. MCCANN). *Univ. of Rochester.* (Nutr.)

Blood Clotting I

TUES. A.M.—MORRISON, PARLOR B & C

Chairman: Benjamin Alexander

9:00 **149.** Wettability of glass and fibrinized surfaces in relation to intravascular blood coagulation. A. L. COPLEY AND G. W. SCOTT BLAIR.* *New York Med. Coll. and Univ. of Reading, England.* (Physiol.)

9:15 **150.** Mechanism of clot-accelerating effect of bubbling. P. DIDISHEIM (intr. by G. E. CARTWRIGHT). *Univ. of Utah.* (Nutr.)

9:30 **151.** Agglutination of rat erythrocytes by serum from rats treated with methyl cellulose. D. A. ROWLEY AND F. W. FITCH. *Univ. of Chicago.* (Pathol.)

9:45 **152.** Effect of electrolytes on clotting activity of Russell's viper venom ('Stypven'). G. HÄRTEL (intr. by A. KEYS). *Univ. of Minnesota.* (Biochem.)

10:00 **153.** Coagulation defects and pulmonary hypertension experimentally produced by pulmonary embolization with infusions of particulate matter. J. W. HAMPTON,* W. E. JACQUES, R. M. BIRD AND D. M. SELBY.* *Univ. of Oklahoma.* (Physiol.)

10:15 **154.** Thrombosis-inducing activity of mammalian serum. S. M. REIMER,* S. WESSLER AND D. DEYKIN.* *Harvard Univ.* (Physiol.)

10:30 **155.** Cation requirements of thrombin for platelet agglutination. R. W. SHERMER,* R. G. MASON,* R. H. WAGNER* AND K. M. BRINKHOUS. *Univ. of North Carolina.* (Pathol.)

10:45 **156.** Failure of hemostasis in the urinary tract: role of urokinase. G. P. MCNICHOL, A. P. FLETCHER AND S. SHERRY (intr. by C. A. MOYER). *Washington Univ.* (Physiol.)

11:00 **157.** 'Mild hemophilia' affecting both males and females. T. P. BOND,* W. C. LEVIN,* D. R. CELANDER* AND M. M. GUEST. *Univ. of Texas.* (Physiol.)

11:15 **158.** Phospholipids in blood coagulation. K. H. SLOTTA. *Univ. of Miami.* (Biochem.)

11:30 **159.** Anticoagulant and anticephalin activity of normal human plasma fractions separated by ultracentrifugation. L. A. KAZAL, O. P. MILLER, R. H. HOLBURN AND L. M. TOCANTINS. *Jefferson Med. Coll.* (Biochem.)

Neuropharmacology II

TUES. A.M.—PALMER HOUSE, GRAND BALLROOM

Chairman: E. W. Pelikan

9:00 **160.** Effects of carisoprodol on CNS activity. MILTON KLETZKIN (intr. by F. M. BERGER). *Wallace Labs.* (Pharmacol.)

9:15 **161.** Pharmacology of a new oxazolidinone with anticonvulsant, analgetic and muscle relaxant properties. M. N. CARROLL, JR., W. R. LUTEN* AND R. W. SOUTHWARD.* *A. H. Robins Labs. and Med. Coll. of Virginia.* (Pharmacol.)

9:30 **162.** Central effects of local anesthetics. H. W. ELLIOTT, G. C. QUILICI* AND C. ELISON.* *Univ. of California.* (Pharmacol.)

9:45 **163.** Pharmacodynamics of N-P-chloro-benzhydryl-N-methyl homopiperazine dihydrochloride (homochlorcyclizine; SA-97). EUGENE T. KIMURA, PATRICK R. YOUNG* AND RICHARD K. RICHARDS. *Abbott.* (Pharmacol.)

10:00 **164.** Pharmacology of some phenoselenazines. JEROME M. GLASSMAN, ALBERT J. BEGANY,* HARVEY H. PLESS,* GEORGE M. HUDYMA* AND JOSEPH SEIFTER. *Wyeth.* (Pharmacol.)

10:15 **165.** Peripheral effects of a tetrahydrocannabinol. R. DAGIRMANJIAN* AND E. S. BOYD. *Univ. of Rochester.* (Pharmacol.)

10:30 **166.** Behavioral and central muscle relaxant properties of α-methyl-β-ethylvaleramide. ADOLPH P. ROSZKOWSKI* AND WILLIAM M. GOVIER. *McNeil Labs.* (Pharmacol.)

10:45 **167.** Pharmacology of amphenidone (Dornwal): a new psychopharmacological agent. J. F. REINHARD, O. J. PLEKSS* AND J. V. SCUDI. *Maltbie Labs.* (Pharmacol.)

11:00 **168.** Toxicology of amphenidone (Dornwal): a new psychopharmacological agent. O. J. PLEKSS*, J. F. REINHARD AND J. V. SCUDI. *Maltbie Labs.* (Pharmacol.)

11:15 **169.** Effects of mescaline and chlorpromazine on two aspects of locomotor activity in rat. STEPHAN L. CHOROVER (intr. by M. E. JARVIK). *New York Univ.* (Pharmacol.)

Tissue Culture II. General: Viruses

TUES. A.M.—PALMER HOUSE, RED LACQUER ROOM

Chairman: W. McD. Hammon

9:00 **170.** Immune activation of a cytolytic factor in serum; its preparation and properties. BERTIL BJÖRKLUND (intr. by MAURICE LANDY). *State Bact. Lab. and Radiumhemmet, Stockholm.* (Immunol.)

9:15 **171.** Continuous cultivation of isogenous cell lines from the human embryo. ELDON V. DAVIS AND VERN S. BOLIN (intr. by W. F. MCLIMANS). *Communicable Dis. Ctr., Phoenix.* (Immunol.)

9:30 **172.** Detection of cells of heterologous origin in tissue culture and their segregation by use of differential media. CALVIN M. KUNIN,* LYMAN R. EMMONS* AND WILLIAM S. JORDAN, JR. *Univ. of Virginia.* (Immunol.)

9:45 **173.** Tissue culture of mammalian macrophages and their susceptibility to mouse hepatitis virus. A. WARWICK* AND F. B. BANG. *Johns Hopkins Univ.* (Immunol.)

10:00 **174.** Changing viral susceptibility of a human conjunctival cell in continuous culture. SAM C. WONG (intr. by EDWIN D. KILBOURNE). *Cornell Univ.* (Immunol.)

10:15 **175.** Canine distemper virus in tissue culture. ROBERT H. BUSSELL (intr. by DAVID T. KARZON). *Univ. of Buffalo.* (Immunol.)

10:30 **176.** Effect of vaccinia infection on certain carbohydrate metabolizing enzymes in 'L' cells. VICTOR B. SLOTNICK (intr. by B. A. BRIODY). *Hahnemann Med. Coll.* (Immunol.)

10:45 **177.** Morphology of vaccinial infection in tissue culture. M. ALOUSI,* M. KURTZ* AND W. W. ACKERMANN. *Univ. of Michigan.* (Immunol.)

11:00 **178.** Adaptation of two strains of rinderpest virus to tissue culture. C. J. DE BOER. *Plum Island Animal Dis. Lab.* (Immunol.)

Tuesday Afternoon, April 12, 1:30 p.m.

SYMPOSIUM: Gastroenterology

TUES. P.M.—CONGRESS, GOLD ROOM

Chairman: Norman Zamcheck

1:30 **179.** Dynamic interaction among body nutrition, gut mucosal metabolism and morphology and transport across the mucosa. NORMAN ZAMCHECK. *Boston City Hosp.*

1:45 **180.** The first common pathway. C. ADRIAN M. HOGBEN. *George Washington Univ.*

2:00 **181.** Intestinal transport of sugars and amino acids. T. HASTINGS WILSON, EDMUND C. C. LIN, BERNARD R. LANDAU AND CHARLES R. JORGENSEN. *Harvard Med. Sch.*

2:15 **182.** Absorption, activation and incorporation of dietary fat into neutral lipids and phospholipids of the intestinal mucosa. D. A. TURNER. *Mt. Sinai Hosp. and Johns Hopkins Univ.*

2:30 **183.** Mechanism of absorption of Vitamin B_{12}. VICTOR HERBERT. *Boston City Hosp.*

2:45 **184.** Comparative enzyme apparatus of the gut mucosa. W. EUGENE KNOX AND R. P. SPENCER. *New England Deaconess Hosp. and Harvard Med. Sch.*

3:00 **185.** Enzymatic histochemistry of gastrointestinal mucous membrane. THEODORE SHNITKA AND ARNOLD SELIGMAN. *Univ. of Alberta, Sinai Hosp. of Baltimore and Johns Hopkins Univ.*

3:15 **186.** Glycoproteins of mucus of the digestive tract. ZACCHARIAS DISCHE. *Columbia Univ.*

Cytology III

TUES. P.M.—CONGRESS, FRANCIS I ROOM

Chairman: Henry D. Moon

1:30 **187.** Electron microscopic identification of the fat and protein particles in frozen-dried mouse milk and lactating mammary gland. S. R. WELLING, B. W. GRUNBAUM, AND K. B. DEOME (intr. by H. D. MOON). *Univ. of California.* (Pathol.)

1:45 **188.** Pathologic characteristics of melanotic and amelanotic melanoma of hamsters. J. C. ROSENBERG,* P. LOBER,* AND B. ZIMMERMANN. *Univ. of Minnesota Hosps.* (Pathol.)

2:00 **189.** A cytochemical and electron microscopic study of experimental squamous cell carcinoma. D. G. SCARPELLI AND E. VON HAAM. *Ohio State Univ.* (Pathol.)

2:15 **190.** Phospholipid composition of human brain tumors. SOM N. NAYYAR, RICHARD E. MCCAMAN AND ROBERT F. HEIMBURGER (intr. by LESLIE W. FREEMAN). *Indiana Univ.* (Physiol.)

2:30 **191.** A new histochemical reaction for demonstrating calcium. R. EISENSTEIN, M. WERNER AND S. PAPAJIANNIS (intr. by GEORGE M. HASS). *Presbyterian-St. Luke's Hosp.* (Pathol.)

2:45 **192.** Changes in morphogenetic potential of teratocarcinogenic embryoid bodies in vivo after prolonged maintenance in vitro. G. B. PIERCE, JR., F. J. DIXON, JR. AND E. L. VERNEY.* *Univ. of Pittsburgh.* (Pathol.)

3:00 **193.** Ciliary reversal and activation by electric current: the Ludloff phenomenon in terms of core and volume conducters. THEODORE L. JAHN. *Univ. of California.* (Physiol.)

3:15 **194.** Human somatotropin activity in tissue culture. HENRY D. MOON AND VIRGINIA L. JENTOFT.* *Univ. of California.* (Pathol.)

3:30 **195.** Inhibition of cell growth in vitro by ultrafiltrates of chick embryo extract. HELEN MAGANINI,* MILTON BECKER,* RICHARD MANASSA* AND GEORGE HASS. *Presbyterian-St. Luke's Hosp.* (Pathol.)

3:45 **196.** Abnormal repair and metastasis in experimental gastric cancer. RHODA GRANT. *Univ. of Illinois.* (Physiol.)

4:00 **197.** Subcellular distribution of substances in seeds of Arachis hypogaea. JULIUS W. DIECKERT AND JAMES E. SNOWDEN, JR. (intr. by A. M. ALTSCHUL). *SURDD, USDA, New Orleans.* (Biochem.)

4:15 **198.** Transamination in transplanted and spontaneous tumors. MICHAEL A. CHIRIGOS,* STEWART R. HUMPHREYS* AND ABRAHAM GOLDIN. *Natl. Insts. of Health.* (Physiol.)

Endocrine V: Thyroid–Parathyroid

TUES. P.M.—MORRISON, COTILLION ROOM

Chairman: J. H. Leathem

1:30 **199.** Changes in tissue cytochrome *c* concentrations after thyroidectomy. H. M. KLITGAARD AND T. M. HART.* *Marquette Univ.* (Physiol.)

1:45 **200.** Respiration of epidermis and dermis from normal and hypothyroid rats. A. KURT WEISS AND MARGARET A. HARSCH.* *Univ. of Miami.* (Physiol.)

2:00 **201.** Basal metabolic rate of the hypothyroid rat. PIETRO O. BRAMANTE (intr. by A. W. RICHARDSON). *St. Louis Univ.* (Physiol.)

2:15 **202.** Effect of age and obesity on basal oxygen consumption of women as related to body fluid compartments. SAUL P. BAKER, NATHAN W. SHOCK AND ARTHUR H. NORRIS.* *Natl. Insts. of Health and Baltimore City Hosp.* (Physiol.)

2:30 **203.** Thyroid-hypophyseal relationships. J. C. OPSAHL, D. W. CROCKER* AND G. J. DAMMIN. *Peter Bent Brigham Hosp. and Harvard Univ.* (Biochem.)

2:45 **204.** Influence of pH and ammonia on thyroxine maintenance of kidney metabolism. R. H. LINDSAY,* R. W. HANSON* AND S. B. BARKER. *Univ. of Albama.* (Physiol.)

3:00 **205.** In vitro uptake of I^{131} by mammary tissue. M. MAQSOOD* AND E. P. REINEKE. *Michigan State Univ.* (Physiol.)

3:15 **206.** Intestinal metabolism of thyroxine. S. L. JONES,* L. WAYNE* AND L. VAN MIDDLESWORTH. *Univ. of Tennessee.* (Physiol.)

3:30 **207.** Parathyroid hormone activity of human and rat plasma constituents. M. V. L'HEUREUX AND LEO E. REICHERT.* *Loyola Univ.* (Biochem.)

Endocrine VI: Thyroxine Congeners and Antagonists

TUES. P.M.—MORRISON, VENETIAN ROOM

Chairman: Andres Goth

1:30 **208.** Effect of dibenzyline on metabolic response to thyroxine and epinephrine. NEENA B. SCHWARTZ. *Michael Reese Hosp.* (Physiol.)

1:45 **209.** Prevention of tapazole-goiter and thyroidal I^{131} release with thyroxine without alteration of PBI. CLARK E. GROSVENOR (intr. by D. A. BRODY). *Univ. of Tennessee.* (Physiol.)

2:00 **210.** Effect of graded doses of propylthiouracil (PTU) on biosynthesis of thyroid hormone. S. IINO AND T. YAMADA (intr. by W. D. BLAKE). *Univ. of Oregon.* (Physiol.)

2:15 **211.** Thyroxine and reserpine on rate of atrial contraction. DAVID THIER AND J. S. GRAVENSTEIN (intr. by E. R. WOODWARD). *Univ. of Florida.* (Physiol.)

2:30 **212.** Reserpine and thyroid activity in the pigeon. B. N. PREMACHANDRA AND C. W. TURNER (intr. by B. A. WESTFALL). *Univ. of Missouri.* (Physiol.)

2:45 **213.** Spontaneous NaCl appetite of propylthiouracil-treated rats. MELVIN J. FREGLY. *Univ. of Florida.* (Physiol.)

3:00 **214.** 3,5-Diiodothyroacetic acid and control of tissue cholesterol and lipid concentrations. W. R. RUEGAMER AND F. R. SILVERMAN. *State Univ. of New York and VA Hosp., Syracuse.* (Biochem.)

3:15 **215.** Effects of *d*-triiodothyronine on serum cholesterol and thyroid function in hypercholesteremic patients. A. P. CROSLEY, JR., F. ALEXANDER* AND W. H. STRICKLAND.* *Mercy-Douglass Hosp.* (Pharmacol.)

3:30 **216.** Effects of 3,5,3′-triiodothyronine and sodium salicylate on metabolism, pulse rate and body temperature. C. L. GEMMILL, R. G. KING* AND K. M. BROWNING.* *Univ. of Virginia.* (Pharmacol.)

Blood Clotting II

TUES. P.M.—MORRISON, PARLORS B & C

Chairman: K. M. Brinkhous

1:30 **217.** Impurities in heparin. H. J. BELL (intr. by L. B. JACQUES). *Univ. of Saskatchewan.* (Physiol.)

1:45 **218.** Spontaneous bleeding during administration of heparin. H. YOSHIMURA AND I. DJERASSI (intr. by S. FARBER). *Harvard Univ.* (Pathol.)

2:00 **219.** Heparin cofactor in normal and irradiated dogs. W. L. MILNE AND A. K. DAVIS. *Naval Radiol. Def. Lab.* (Physiol.)

2:15 **220.** Role of vitamin A in nutritional hypoprothrombinemia in rats. J. T. MATSCHINER* AND E. A. DOISY, JR. *St. Louis Univ.* (Biochem.)

2:30 **221.** Induced 'hyperprothrombinemia' in guinea pigs. M. WEINER AND P. G. DAYTON.* *New York Univ. and Natl. Insts. of Health.* (Physiol.)

2:45 **222.** Demonstration of prothrombin in liver parenchymal cells using fluorescent antibody. M. I. BARNHART AND G. F. ANDERSON.* *Wayne State Univ.* (Physiol.)

3:00 **223.** Prothrombin homeostasis in cross-circulated normal and dicoumarol treated dogs. R. D. LANGDELL, L. W. BOWERSOX,* R. A. WEAVER* AND R. E. PRICE.* *Univ. of North Carolina.* (Pathol.)

3:15 **224.** Some aspects of prothrombin activation. K. D. MILLER, J. MCGARRAHAN* AND W. H. COPELAND. *New York State Dept. of Health.* (Biochem).

3:30 **225.** Separation of factors VII, IX and X from prothrombin and their action in prothrombin conversion. R. GOLDSTEIN (intr. by J. P. BUNKER). *Tufts Univ.* (Pharmacol.)

3:45 **226.** Activation of prothrombin, factors VII and X, by proteolytic pathway. L. PECHET* AND B. ALEXANDER. *Harvard Univ.* (Biochem.)

4:00 **227.** Thrombin topical inhibition of the lipoprotein lipase (LPL) system. L. O. PILGERAM. *Univ. of Minnesota.* (Biochem.)

4:15 **228.** Specificity of thrombin. Y. LEVIN,* J. E. FOLK, J. A. GLADNER AND K. LAKI.* *Natl. Insts. of Health.* (Biochem.)

Neuropharmacology III

TUES. P.M.—PALMER HOUSE, GRAND BALLROOM

Chairman: F. E. Shideman

1:30 **229.** Anesthetic properties of the azeotropic mixture of Fluormar and Genetron 113. GORDON G. LU, JOHNSON S. L. LING* AND JOHN C. KRANTZ, JR. *Univ. of Maryland.* (Pharmacol.)

1:45 **230.** Series of fluorinated ethers. ALAN VAN POZNAK* AND JOSEPH F. ARTUSIO, JR. *New York Hosp. and Cornell Univ.* (Pharmacol.)

2:00 **231.** Clinical evaluation of methoxyflurane in man. J. F. ARTUSIO, JR., A. VAN POZNAK,* R. HUNT,* F. TIERS* AND M. ALEXANDER.* *New York Hosp. and Cornell Univ.* (Pharmacol.)

2:15 **232.** Chlorpromazine premedication with pentobarbital anesthesia in the turtle. R. YOUNG,* H. M. KAPLAN AND M. R. KAPLAN.* *Southern Illinois Univ.* (Physiol.)

2:30 **233.** Effects of amobarbital sodium and meprobamate on autonomic reactivity as measured by cardiovascular responses to the cold pressor stress. K. RICKELS, J. H. EWING AND F. FOCHLER (intr. by C. J. LAMBERTSEN). *Univ. of Pennsylvania.* (Pharmacol.)

2:45 **234.** Effects of thalidomide on central nervous system drugs. W. L. KUHN* AND E. F. VAN MAANEN. *Wm. S. Merrell Co.* (Pharmacol.)

3:00 **235.** Metabolic fate of thiobarbital in man. MILTON T. BUSH. *Vanderbilt Univ.* (Pharmacol.)

3:15 **236.** Behavior of methohexital in man. LESTER C. MARK, LEONARD BRAND,* PETER DAYTON,* PATRICIA BLABER* AND E. M. PAPPER. *Columbia Univ., Goldwater Mem. Hosp., and Natl. Insts. of Health.* (Pharmacol.)

3:30 **237.** Anticonvulsant activity of a metabolite of phenobarbital. CHARLES R. CRAIG,* KANEO HIRANO* AND FREDERICK E. SHIDEMAN. *Univ. of Wisconsin.* (Pharmacol.)

3:45 **238.** Comparison of Nembutal and procaine effects on direct cortical responses in isolated cat cortex. MICHAEL J. JERVA,* THOMAS G. HOLMES,* SIDNEY GOLDRING AND JAMES L. O'LEARY.* *Washington Univ.* (Physiol.)

4:00 **239.** Meprobamate metabolism. ROBERT WISER* AND JOSEPH SEIFTER. *Wyeth.* (Pharmacol.)

Federation Joint Session

TUESDAY, 8:00 P.M.—CONRAD HILTON, GRAND BALLROOM

Placement Service

Exhibition Hall, fourth floor, Palmer House

Lost and Found

Federation Office, Room 505, Conrad Hilton

Wednesday Morning, April 13, 9:00 a.m.

SYMPOSIUM: Problems in Toxicology I

Co-sponsored by the American Society of Pharmacology and Experimental Therapeutics and the American Institute of Nutrition and organized jointly by the Committee on Toxicology and the Food Protection Committee, National Research Council, and the Toxicology Study Section, National Institutes of Health.

WED. A.M.—PALMER HOUSE, RED LACQUER ROOM

Chairman: Chauncey D. Leake

9:00 **240.** Chairman's remarks.
9:05 **241.** Introduction. R. KEITH CANNAN. *Natl. Res. Council.*
9:15 **242.** Our man-made noxious environment. E. M. K. GEILING. *Food and Drug Admin.*
9:40 **243.** Food: additives and natural components. WILLIAM J. DARBY. *Vanderbilt Univ.*
10:05 **244.** Drugs and cosmetics. ARNOLD J. LEHMAN. *Food and Drug Admin.*
10:30 **245.** Agricultural chemicals. GEORGE C. DECKER. *Illinois State Natural History Survey.*
10:55 **246.** Chemicals in industry. HORACE W. GERARDE. *Esso Res. and Engineering Co.*
11:20 **247.** Water and atmosphere. HERBERT E. STOKINGER. *Occupational Health Field HQ.*

Symposium continues Wednesday afternoon

Gastroenterology II

WED. A.M.—CONGRESS, GOLD ROOM

Chairman: Sheldon C. Sommers

9:00 **248.** Paper electrophoretic detection of leakage of albumin into the gastric juice in protein-losing gastropathies and gastric cancer. GEORGE B. JERZY GLASS AND AKIRA ISHIMORI.* *New York Med. Coll.* (Physiol.)

9:15 **249.** Atrophic gastrititis in dogs induced by a preparation of human gastric juice. W. O. SMITH,* MERLIN K. DUVAL,* WALTER JOEL AND STEWART WOLF.* *Univ. of Oklahoma and VA Hosp.* (Pathol.)

9:30 **250.** Autografts and homografts of the stomach in dogs. R. C. LILLEHEI, J. K. LONGERBEAM AND B. GOOTT. (intr. by J. JOHNSON). *Univ. of Minnesota.* (Physiol.)

9:45 **251.** In vitro and in vivo radioautography of gastrointestinal tract neoplasms. D. B. SHAHON,* N. B. ACKERMAN* AND O. H. WANGENSTEEN. *Univ. of Minnesota.* (Pathol.)

10:00 **252.** A topographic study of gastric epithelial hyperplasia accompanying gastric cancer. SHELDON C. SOMMERS. *Massachusetts Mem. Hosp. and Boston Univ.* (Pathol.)

10:15 **253.** Serum albumin (ALB) in canine gastric acetylcholine-mucus (ACh-Mu) and whole stomach aspirates. F. HOLLANDER AND M. I. HOROWITZ.* *Mt. Sinai Hosp.* (Physiol.)

10:30 **254.** Vitamin B_{12}-intrinsic factor relationships. MILTON TOPOREK (intr. by J. W. GODDARD). *Jefferson Med. Coll.* (Pathol.)

10:45 **255.** A comparative study of 'Jorpes-Mutt' secretin and 'boots' secretin in man. DAVID C. H. SUN AND HARRY SHAY. *Temple Univ.* (Physiol.)

11:00 **256.** Factors affecting absorption of methionine from intestine of the chicken. M. WIGHT TAYLOR AND SAM YANKELOWITZ.* *State Univ. of New Jersey.* (Nutr.)

11:15 **257.** Effects of some anticholinergic drugs on basal and secretin-stimulated pancreatic secretion in man. DAVID A. DREILING* AND HENRY D. JANOWITZ. *Mt. Sinai Hosp.* (Physiol.)

11:30 **258.** Ionic effect on sugar transport from intestine of the rat. T. Z. CSÁKY. *Univ. of North Carolina.* (Physiol.)

11:45 **259.** Transport of monovalent ions across the isolated small intestine of the rat. T. W. CLARKSON* AND A. ROTHSTEIN. *Univ. of Rochester.* (Physiol.)

12:00 **260.** Cholesterol-4-C^{14} and bile acids in the guinea pig. LUDVIK PERIC-GOLIA* AND RUSSELL S. JONES. *Univ. of Utah.* (Pathol.)

Cytology IV: Leucocytes

WED. A.M.—CONGRESS, FRANCIS I ROOM

Chairman: Douglas H. Sprunt

9:00 **261.** Phospholipids in human leukemic cells. BARRY G. FIRKIN AND WILLIAM J. WILLIAMS (intr. by WILLIAM J. HARRINGTON). *Washington Univ.* (Pathol.)

9:15 **262.** Localization of Russell-body formation in the human plasma cell. RONALD A. WELSH (intr. by RUSSELL L. HOLMAN). *Louisiana State Univ.* (Pathol.)

9:30 **263.** Fate of the lymphocyte. WILLIAM J. BECKFIELD, M. HIRATA,* JOSEPH SEIFTER AND WILLIAM E. EHRICH. *Univ. of Pennsylvania and Wyeth Inst.* (Pathol.)

9:45 **264.** Acid phosphatase and reticuloendothelial system. T. BARKA,* F. SCHAFFNER AND H. POPPER. *Mt. Sinai Hosp.* (Pathol.)

10:00 **265.** A hypoglycemic factor in leukemic tumor of mice. MURRAY N. SILVERSTEIN,* KHALIL G. WAKIM, ROBERT C. BAHN AND EDWIN D. BAYRD.* *Mayo Clinic and Mayo Fndn.* (Physiol.)

10:15 **266.** Effects of amino acid overloads in myelocytic leukemia. W. J. HARRINGTON, G. K. ARIMURA,* K. MUENCH* AND D. HARKNESS.* *Washington Univ.* (Pathol.)

10:30 **267.** Isolation of highly purified leukocytes from human blood. A. R. CHRISTLIEB,* A. J. SBARRA* AND W. A. BARDAWIL. *St. Margaret's Hosp. and Tufts Univ.* (Pathol.)

10:45 **268.** Anti-globulin consumption in detection of leukocyte antibodies. ROBERT E. ANDERSON* AND ROY L. WALFORD. *Univ. of California.* (Pathol.)

11:00 **269.** Lupus cells at local inflammatory sites in lupus patients. PASQUALE E. PERILLIE, PAUL CALABRESI AND STUART C. FINCH (intr. by HARRY S. N. GREENE). *Yale Univ.* (Pathol.)

11:15 **270.** Leukocyte changes in normal dogs exposed to microwaves. RODERICK A. E. THOMSON, SOL M. MICHAELSON AND JOE W. HOWLAND (intr. by I. L. SPAR). *Univ. of Rochester.* (Pathol.)

11:30 **271.** Growth of human cancer cells in newborn rats. LEON J. KUTNER AND CHESTER M. SOUTHAM (intr. by L. D. HAMILTON). *Sloan-Kettering.* (Pathol.)

11:45 **272.** Heterotransplantation of spontaneous AKR-leukemia into newborn rats. W. H. KIRSTEN (intr. by H. LISCO). *Univ. of Chicago.* (Pathol.)

12:00 **273.** A crabtree-like effect in homogenates of ascites cells. R. CEREIJO-SANTALO (intr. by R. L. POST). *Vanderbilt Univ.* (Physiol.)

Endocrine VII: Adrenal Cortex

WED. A.M.—MORRISON, COTILLION ROOM

Chairman: J. O. Davis

9:00 **274.** Products of cholesterol metabolism in soluble extracts of acetone-dried bovine adrenocortical mitochondria. I. D. K. HALKERSTON,* J. EICHHORN* AND O. HECHTER. *Worcester Fndn.* (Physiol.)

9:15 **275.** Adrenocortical response of newborn rats to stress and vasopressin. SHAWN SCHAPIRO (intr. by JOSEPH KATZ). *VA Ctr., Los Angeles and UCLA.* (Biochem.)

9:30 **276.** Effect of an aldosterone antagonist on gastric and renal function in dog. HELENA GILDER, CHARLES MCSHERRY AND JOHN M. BEAL (intr. by V. DUVIGNEAUD). *Cornell Univ.* (Biochem.)

9:45 **277.** Inhibitory action of acetyl strophanthidin on secretion of aldosterone. ALLEN W. GOMOLL* AND THEODORE R. SHERROD. *Univ. of Illinois.* (Pharmacol.)

10:00 **278.** Relation of anterior pituitary function to aldosterone and corticosterone secretion in conscious dogs. JAMES O. DAVIS, CHARLES C. J. CARPENTER,* CARLOS R. AYERS* AND ROBERT C. BAHN. *Natl. Insts. of Health and Mayo Clinic.* (Physiol.)

10:15 **279.** Adrenaline, noradrenaline and 3-methoxy-4-hydroxy-mandelic acid (MOMA) excretion following centrifugation and anticipation of centrifugation. LAWRENCE BERMAN AND MCC. GOODALL (intr. by HORACE O. PARRACK). *Aerospace Med. Lab. and Univ. of Tennessee.* (Physiol.)

10:30 **280.** Effect of guanylic acid on stress responses. E. R. RAMEY AND J. KABAL (intr. by J. C. ROSE). *Georgetown Univ.* (Physiol.)

10:45 **281.** Adrenocortical effects of respiratory acidosis and its counteraction with tris hydroxy methyl amino methane. A. MITTLEMAN,* S. DOS,* G. NAHAS AND H. G. BARKER. *Presbyterian Hosp. and Columbia Univ.* (Physiol.)

11:00 **282.** Effect of corticosteroids on non-dialyzable substances of gastric juice. ANTON L. HITZELBERGER AND GEORGE B. JERZY GLASS (intr. by LINN J. BOYD). *New York Med. Coll.* (Pharmacol.)

11:15 **283.** Survival of adrenalectomized animals exposed to low barometric pressure. D. A. DEBIAS AND K. E. PASCHKIS (intr. by J. M. WALDRON). *Jefferson Med. Coll.* (Physiol.)

Blood Clotting III

WED. A.M.—MORRISON, PARLORS B & C

Chairman: J. M. Ferguson

9:00 **284.** Serum thromboplastogenic activity. H. C. PIRKLE, V. G. ALLEN, H. C. ANDERSON AND J. J. MCHUGH (intr. by W. M. CHRISTOPHERSON). *Univ. of Louisville.* (Pathol.)

9:15 **285.** Thromboplastinogenic defects of blood coagulation: a new test for their recognition. A. J. QUICK. *Marquette Univ.* (Biochem.)

9:30 **286.** Thromboplastin formation with Russell's viper venom. A. C. PEACOCK (intr. by G. Z. WILLIAMS). *Natl. Insts. of Health.* (Pathol.)

9:45 **287.** Thromboplastin generation heparin tolerance test (TGTT) in hypocoagulable states. J. N. SHANBERGE AND E. E. REGAN.* *Harvard Univ.* (Pathol.)

10:00 **288.** A labile serum factor needed for thromboplastin generation. E. D. WARNER, W. E. CONNOR* AND J. R. CARTER. *State Univ. of Iowa.* (Pathol.)

10:15 **289.** Effect of low temperature on the intrinsic thromboplastin system. L. W. GASTON AND H. DEORSAY (intr. by S. LESKOWITZ). *Harvard Univ.* (Immunol.)

10:30 **290.** Purification and assay of thromboplastinase. A. OTTOLENGHI, S. GOLLUB AND A. W. ULIN. *S. Hillman Med. Ctr.* (Pathol.)

10:45 **291.** Effects of clotting on platelet thromboplastic activity. J. H. LEWIS. *Univ. of Pittsburgh.* (Physiol.)

11:00 **292.** Platelet defect in polycythemia vera. O. N. ULUTIN* AND S. A. JOHNSON. *Henry Ford Hosp.* (Physiol.)

11:15 **293.** Some properties of platelet cofactor I (Factor VIII). W. J. BAKER* AND W. H. SEEGERS. *Wayne State Univ.* (Physiol.)

Neuropharmacology IV

WED. A.M.—PALMER HOUSE, GRAND BALLROOM

Chairman: M. G. Larrabee

9:00 **294.** Glucose utilization by resting squid axon. J. D. KLINGMAN, M. G. LARRABEE AND F. D. CARLSON (intr. by W. E. LOVE). *Johns Hopkins Univ. and Marine Biol. Lab.* (Physiol.)

9:15 **295.** Kinetics of C^{14}-sucrose distribution in cerebral cortex, cerebrospinal fluid and plasma of rats. DONAL J. REED* AND DIXON M. WOODBURY. *Univ. of Utah.* (Pharmacol.)

9:30 **296.** Inhibition of glycolysis in brain by quinones and dihydric phenols. GERALD COHEN AND PAUL HOCHSTEIN (intr. by M. J. FRUMIN). *Columbia Univ.* (Pharmacol.)

9:45 **297.** Mechanism of special sensitivity of brain to glycolytic inhibition by quinones and dihydric phenols. PAUL HOCHSTEIN AND GERALD COHEN (intr. by A. GELLHORN). *Columbia Univ.* (Pharmacol.)

10:00 **298.** Effect of isoniazide and iproniazide on pathways of glucose utilization in the perfused brain. A. GEIGER, V. AGUILAR, G. GOMBOS, W. SCRUGGS AND G. WHITNEY (intr. by FREDERIC A. GIBBS). *Univ. of Illinois.* (Physiol.)

10:15 **299.** Analysis of glucose-lack in sympathetic ganglia. M. G. LARRABEE, F. J. BRINLEY, JR,* P. HOROWICZ,* J. KLINGMAN* AND G. LOONEY.* *Johns Hopkins Univ.* (Physiol.)

10:30 **300.** Pre- and postsynaptic slow potentials in virus-infected sympathetic ganglia of the rat. JACOB ZAHARA* AND JOHN DEMPSHER. *Univ. of Pennsylvania.* (Pharmacol.)

10:45 **301.** Cerebral synaptic inhibition by histamine. THOMAS M. GILFOIL,* E. ROSS HART* AND AMEDEO S. MARRAZZI. *VA Res. Labs., Pittsburgh.* (Physiol.)

11:00 **302.** Potentiation of adrenergic and cholinergic mechanisms with small doses of imipramine. E. B. SIGG, MELVILLE OSBORNE* AND ELLIOT BINDLER.* *Geigy Res. Labs.* (Physiol.)

Wednesday Afternoon, April 13, 1:30 p.m.

SYMPOSIUM: Current Concepts in Lipid Metabolism

Co-sponsored by the American Heart Association and the American Physiological Society

WED. P.M.—PALMER HOUSE, GRAND BALLROOM

Chairman: D. B. Zilversmit

1:30 **303.** The clearing factor. Lipase and its possible significance in fat transport. D. S. ROBINSON. *Oxford Univ., England.*
2:15 **304.** Endocrine control of isolated adipose tissue. ALBERT E. RENOLD AND GEORGE F. CAHILL, JR. *Harvard Univ.*
2:45 **305.** Role of the reticuloendothelial system in lipid metabolism. N. R. DILUZIO. *Univ. of Tennessee.*
3:15 **306.** Mechanisms for control of cholesterol synthesis in the liver. MARVIN D. SIPERSTEIN. *Univ. of Texas.*
3:45 **307.** Lipids of atheromatous deposits. C. J. F. BÖTTCHER. *Univ. of Leiden, Netherlands.*

SYMPOSIUM: Problems in Toxicology II

Continued from Wednesday morning

WED. P.M.—PALMER HOUSE, RED LACQUER ROOM

Chairman: W. Henry Sebrell, Jr.

1:30 **308.** Chairman's remarks.
1:40 **309.** Radioactive materials. CHARLES L. DUNHAM. *U. S. Atomic Energy Comm.*
2:05 **310.** Submarine hazards. JACK L. KINSEY. *Dept. of the Navy.*
2:30 **311.** Space hazards. DOUGLAS E. SMITH. *Argonne Natl. Labs.*
2:55 **312.** Recognition of toxicology as a scientific discipline. H. F. SMYTH, JR. *Mellon Inst.*
3:25 **313.** Training of toxicologists. HAROLD C. HODGE. *Univ. of Rochester.*

Endocrine VIII: Adrenal Corticoids

WED. P.M.—MORRISON, COTILLION ROOM

Chairman: Robert Gaunt

1:30 **314.** Endocrine and species influences on cortisone metabolism in vitro. A. A. HAGEN* AND R. C. TROOP. *Univ. of Tennessee.* (Pharmacol.)
1:45 **315.** Influence of various incubation media on steroid C-17 hydroxylation. F. G. HOFMANN. *Columbia Univ.* (Pharmacol.)
2:00 **316.** Activation of adrenal phosphorylase by cyclic 3′, 5′-adenylate. GENE A. RILEY AND ROBERT C. HAYNES, JR. (intr. by E. W. SUTHERLAND). *Western Reserve Univ.* (Pharmacol.)
2:15 **317.** Plasma levels of corticosterone after adrenal enucleation. P. M. HYDE AND F. R. SKELTON. *Louisiana State Univ. and Urban Maes Res. Fndn.* (Biochem.)
2:30 **318.** Stimulation of steroid formation of adrenocortical homogenates by medulla and catecholamines. D. Y. COOPER, V. J. PILEGGI,* O. FOROFF* AND OTTO ROSENTHAL. *Univ. of Pennsylvania.* (Physiol.)
2:45 **319.** Role of incubating medium in epinephrine and hydrocortisone effects on glucose utilization. M. HERMAN* AND E. R. RAMEY. *Georgetown Univ.* (Physiol.)
3:00 **320.** Corticosteroidogenic potential of regenerated rat adrenals. I. A. MACCHI AND LELAND C. WYMAN. *Boston Univ.* (Physiol.)
3:15 **321.** Effect of C_{11}-substitution on biological activity of adrenocortical steroids. S. TOLKSDORF,* F. WARREN* AND P. L. PERLMAN. *Schering.* (Pharmacol.)
3:30 **322.** A new family of steroids with strong anti-inflammatory activity. J. G. LLAURADO* AND J. A. SCHNEIDER. *Chas. Pfizer.* (Physiol.)
3:45 **323.** Anti-inflammatory properties of cobaltous chloride and 20-cobalto-Δ-1-hydrocortisone. JAMES W. FISHER (intr. by AARON GANZ). *Univ. of Tennessee.* (Pharmacol.)

Blood Clotting IV

WED. P.M.—MORRISON, PARLORS B & C

Chairman: K. Laki

1:30 **324.** Profibrinolysin-free fibrinogen. D. R. CELANDER AND M. M. GUEST (intr. by D. B. CALVIN). *Univ. of Texas.* (Biochem.)

1:45 **325.** Human and bovine fibrinogens: chromatographic, ultracentrifugal and immunologic characterization. M. D. PRAGER, R. J. SPEER AND P. S. WORK (intr. by M. MASON). *Baylor Univ.* (Biochem.)

2:00 **326.** Effects of intravenous injections of the anticoagulant fraction of incubated fibrinogen (AFIF). D. C. TRIANTAPHYLLOPOULOS (intr. by J. W. PEARCE). *Univ. of Alberta.* (Physiol.)

2:15 **327.** Factors influencing polymer and gel formation from fibrin monomer. Z. S. LATALLO, N. ALKJAERSIG AND A. P. FLETCHER (intr. by S. REICHLIN). *Washington Univ.* (Physiol.)

2:30 **328.** Kinetic behavior of the system: fibrinogen, thrombin, fibrinolysin. D. M. SURGENOR. *Harvard Univ.* (Biochem.)

2:45 **329.** Chromatography of partially purified bovine plasminogen (profibrinolysin). E. R. COLE,* A. DALBY,* R. W. FULLER* AND E. T. MERTZ. *Purdue Univ.* (Biochem.)

3:00 **330.** Purification of human plasminogen and bovine plasminogen. N. ALKJAERSIG (intr. by J. R. SMITH). *Washington Univ.* (Physiol.)

3:15 **331.** Column chromatography of plasminogen and plasmin. P. S. NORMAN (intr. by L. E. CLUFF). *Johns Hopkins Univ.* (Immunol.)

3:30 **332.** Human plasminogen—physicochemical studies. W. BAUMGARTEN, R. B. COLE, A. HOGANS, A. DANFORTH AND D. S. SPICER (intr. by C. C. PORTER). *Merck.* (Biochem.)

3:45 **333.** Molecular changes in activation of plasminogen. U. RIFÉ* AND S. SHULMAN. *Univ. of Buffalo.* (Biochem.)

4:00 **334.** Isolation of purified plasmin. D. L. KLINE AND J. B. FISHMAN. *Yale Univ.* (Physiol.)

Neuropharmacology V

WED. P.M.—PALMER HOUSE, MONROE ROOM

Chairman: J. E. P. Toman

1:30 **335.** Analysis of spinal excitatory action of pentylenetetrazol. JORGE LEWIN* AND DON W. ESPLIN. *Univ. of Utah.* (Pharmacol.)

1:45 **336.** Aspects of depressant drug selectivity for spinal monosynaptic and polysynaptic responses. DON W. ESPLIN. *Univ. of Utah.* (Pharmacol.)

2:00 **337.** Comparative neuropharmacology of four interneuronal depressants. P. SPITALETTA, L. B. WITKIN, F. GELDI AND M. MAGGIO (intr. by A. J. PLUMMER). *Ciba.* (Pharmacol.)

2:15 **338.** Differential effects of phenobarbital, pentobarbital and diphenylhydantoin on motor cortical and reticular thresholds in monkeys. ROY ASTON* AND EDWARD F. DOMINO. *Univ. of Michigan.* (Pharmacol.)

2:30 **339.** Quantification of the EEG activation response: effects of belladonna alkaloids. J. C. PAUL-DAVID* AND K. R. UNNA. *Univ. of Illinois.* (Pharmacol.)

2:45 **340.** Antagonistic effects of methacholine on central and peripheral actions of hyoscine in man. A. M. OSTFELD AND A. Y. COOMBS (intr. by K. R. UNNA). *Univ. of Illinois.* (Pharmacol.)

3:00 **341.** Effect of cortisol and deoxycorticosterone (DCA) on electroshock seizure patterns in developing rats. ANTONIA VERNADAKIS* AND DIXON M. WOODBURY. *Univ. of Utah.* (Pharmacol.)

3:15 **342.** Effects of 'convulsant' ω-amino acids during cortical maturation (cat). M. W. CARMICHAEL, E. M. HOUSEPIAN AND D. P. PURPURA (intr. by H. B. VAN DYKE). *Columbia Univ.* (Pharmacol.)

3:30 **343.** Amino acids and spinal neurones. D. R. CURTIS, J. W. PHILLIS AND J. C. WATKINS (intr. by C. MCC. BROOKS). *Australian Natl. Univ.* (Pharmacol.)

Future Annual Meetings

Dates of Federation Annual Meetings for the next three years are: 1961: April 10–14; 1962: April 16–20; 1963: April 15–19.

Thursday Morning, April 14, 9:00 a.m.

Tissue Culture III: Viruses and Nucleic Acids

THURS. A.M.—BLACKSTONE, CRYSTAL BALLROOM

Chairman: E. H. Lennette

9:00 **344.** Nucleic acid metabolism in tissue culture. L. E. FEINENDEGEN,* V. P. BOND, W. W. SHREEVE AND R. B. PAINTER. *Brookhaven Natl. Lab. and Battelle Mem. Inst.* (Physiol.)

9:15 **345.** Interfering effect of sodium desoxycholate-treated Mayaro virus. J. R. HENDERSON* AND R. M. TAYLOR. *Yale Univ.* (Immunol.)

9:30 **346.** Alteration in composition of nuclear RNA from hamsters with equine abortion (EAV) hepatitis. GLENN A. GENTRY* AND CHARLES C. RANDALL. *Univ. of Mississippi.* (Immunol.)

9:45 **347.** Cytopathological and cytochemical observations of RNA synthesis in HeLa and MK cells infected with parainfluenza virus. R. GERALD SUSKIND* AND ROBERT LOVE. *Natl. Insts. of Health.* (Pathol.)

10:00 **348.** Nucleic acid and protein synthesis in adenovirus-infected cells. MAURICE GREEN AND GERALDINE E. DAESCH (intr. by R. W. SCHLESINGER). *St. Louis Univ.* (Immunol.)

10:15 **349.** Characteristics of type 8 adenovirus. W. A. CLYDE, JR.* AND F. W. DENNY, JR. *Western Reserve Univ.* (Immunol.)

10:30 **350.** Purification and immunochemical characterization of adenovirus antigens. W. WILCOX* AND H. S. GINSBERG. *Western Reserve Univ.* (Immunol.)

10:45 **351.** Susceptibility and resistance of cells in vitro to infection by Coxsackie A-9 virus. L. C. MCLAREN AND J. J. HOLLAND (intr. by J. T. SYVERTON). *Univ. of Minnesota.* (Immunol.)

11:00 **352.** Infectious RNA from purified poliovirus and Coxsackie virus. J. J. HOLLAND,* L. C. MCLAREN,* B. H. HOYER* AND J. T. SYVERTON. *Univ. of Minnesota and Rocky Mt. Lab.* (Immunol.)

11:15 **353.** Selective inhibition of enteroviruses by 2-(α-hydroxybenzyl)-benzimidazole (HBB). HANS J. EGGERS* AND IGOR TAMM. *Rockefeller Inst.* (Immunol.)

11:30 **354.** Nucleic acid metabolism of rabbit kidney cells treated with 5-fluorouracil and infected with pseudorabies virus. ALBERT S. KAPLAN AND TAMAR BEN-PORAT.* *Albert Einstein Med. Ctr.* (Immunol.)

11:45 **355.** Inhibitory effect of small doses of x-radiation on incorporation of iododeoxyuridine (IDU) into DNA. S. L. COMMERFORD,* D. GITLIN AND W. L. HUGHES.* *Brookhaven Natl. Lab. and Harvard Univ.* (Immunol.)

Atherosclerosis I: General Studies

THURS. A.M.—MORRISON HOTEL, TERRACE CASINO

Chairman: Jeremiah Stamler

9:00 **356.** Determination of phosphatidyl serine (PS) and phosphatidyl ethanolamine (PE) by glass paper chromatography. JAMES E. MULDREY,* O. NEAL MILLER AND JAMES G. HAMILTON.* *Tulane Univ.* (Nutr.)

9:15 **357.** [Aortic QO_2 of normal, cholesterol-fed, hypertensive and cortisone-treated rabbits. J. H. GELLER,* EDWIN R. FISHER AND E. TAPPER. *Univ. of Pittsburgh and VA Hosp.* (Pathol.)

9:30 **358.** Abnormal adrenal function in arteriosclerotic rats. G. W. KITTINGER,* B. C. WEXLER AND B. F. MILLER. *May Inst. and Univ. of Cincinnati.* (Pathol.)

9:45 **359.** Release of heparin-induced lipemia clearing factor from perfused rat heart. M. F. CRASS, III* AND H. C. MENG. *Vanderbilt Univ.* (Physiol.)

10:00 **360.** Lipemia clearing defect in alloxan diabetic rat. R. J. HO AND H. C. MENG (intr. by P. F. HAHN). *Vanderbilt Univ.* (Physiol.)

10:15 **361.** Dietary Mg-priming effect on rat heart valve-aorta lipidosis. E. E. HELLERSTEIN, M. NAKAMURA,* D. M. HEGSTED* AND J. J. VITALE.* *Harvard Univ.* (Pathol.)

10:30 **362.** Free amino acids and other constituents of rabbits' blood and blood vessels. O. J. POLLAK AND ARACELI M. F. DE ENGEL. *Dover Med. Res. Ctr.* (Pathol.)

10:45 **363.** Modification of hypercholesterolemia and hepatic cholesterosis. N. R. DI LUZIO. *Univ. of Tennessee.* (Physiol.)

11:00 **364.** Effects of vegetable oils on hepatic cholesterol levels. ROSLYN B. ALFIN-SLATER, SHEILA AUERBACH* AND ROSEMARY L. SHULL.* *UCLA.* (Nutr.)

11:15 **365.** Relation of linoleic acid and chain length of triglycerides to neutral fat deposition. HANS KAUNITZ, C. A. SLANETZ,* R. E. JOHNSON* AND V. K. BABAYAN.* *Columbia Univ. and E. F. Drew & Co.* (Pathol.)

Endocrine IX: Adrenal Cortex

THURS. A.M.—MORRISON, COTILLION ROOM

Chairman: M. J. Vander Brook

9:00 **366.** Metabolism of steroids by a strain of rabbit fibroblasts. M. J. BRYSON* AND H. E. SWIM. *Univ. of Utah and Western Reserve Univ.* (Biochem.)

9:15 **367.** Corticosteroids and incorporation of C^{14} into nucleic acid by isolated rat diaphragm. LLOYD A. FERGUSON AND IRA G. WOOL (intr. by J. O. HUTCHENS). *Univ. of Chicago.* (Physiol.)

9:30 **368.** Effect of corticoids on protein metabolism. ANTHONY A. ALBANESE, EDWARD J. LORENZE* AND LOUISE A. ORTO.* *Burke Fndn. and St. Luke's Convalescent Hosp.* (Biochem.)

9:45 **369.** Specific and non-specific phosphatases at the inflammatory site. LEONARD B. ACHOR, RAYMOND F. GEOFFROY* AND WILLIAM L. BOWERS.* *Merck.* (Pharmacol.)

10:00 **370.** In vitro reaction between leucocytes and hydrocortisone. MELVIN M. KETCHEL AND SOMERS H. STURGIS (intr. by RUTH CONKLIN). *Peter Bent Brigham Hosp. and Harvard Univ.* (Physiol.)

10:15 **371.** Sex difference in metabolism of histamine in the rat. K. J. NETTER* AND P. A. SHORE. *Natl. Insts. of Health.* (Pharmacol.)

10:30 **372.** Endocrine factors in histamine susceptibility. ARTHUR M. SACKLER, JOSEPH GENNIS, P. JURTSHUK, JR., A. S. WELTMAN AND M. BRADSHAW (intr. by R. H. CHENEY). *Long Island Univ. and Brooklyn Coll. of Pharmacy.* (Pharmacol.)

10:45 **373.** Action of adrenal steroids on HeLa cells. CATHER-

INE C. SNELL* AND ALLAN D. BASS. *Vanderbilt Univ.* (Pharmacol.)

11:00 **374.** Effect of splenectomy on adrenal and plasma corticoids of fasted rats. GRANT G. SLATER (intr. by R. B. ALFIN-SLATER). *Univ. of California.* (Biochem.)

11:15 **375.** Blood levels, tissue deposition, excretion and metabolism of a synthetic corticosteroid (Triamcinolone). J. R. FLORINI, E. A. PEETS AND D. A. BUYSKE (intr. by EARL H. DEARBORN). *Lederle.* (Pharmacol.)

Neuropharmacology VI

THURS. A.M.—PALMER HOUSE, GRAND BALLROOM

Chairman: Guy M. Everett

9:00 **376.** Antagonistic actions of imipramine (Tofranil) and reserpine on central nervous system. F. SULSER,* J. WATTS* AND B. B. BRODIE. *Natl. Insts. of Health.* (Pharmacol.)

9:15 **377.** Reserpine ptosis is unrelated to brain catecholamine levels. ERMINIO COSTA AND GORDON R. PSCHEIDT.* *Galesburg State Res. Hosp.* (Pharmacol.)

9:30 **378.** Depletion of brain norepinephrine by reserpine without producing sedation. F. BARBARA ORLANS,* FRIDOLIN SULSER* AND B. B. BRODIE. *Natl. Insts. of Health.* (Pharmacol.)

9:45 **379.** Spreading depression and self-stimulation. JAMES OLDS AND ROBERT P. TRAVIS.* *Univ. of Michigan.* (Physiol.)

10:00 **380.** Some biochemical effects of reserpine mediated by the pituitary. E. O. WESTERMANN,* R. P. MAICKEL* AND B. B. BRODIE. *Natl. Insts. of Health.* (Pharmacol.)

10:15 **381.** Increase in rat liver tryptophan peroxidase as a response to pituitary-adrenal stimulation by various centrally acting drugs. R. P. MAICKEL* AND B. B. BRODIE. *Natl. Insts. of Health.* (Pharmacol.)

10:30 **382.** Inhibition of sound-induced running, clonus and tonus by various central nervous system depressants. E. A. CONRAD (intr. by L. GRUMBACH). *Sterling-Winthrop Res. Inst.* (Physiol.)

10:45 **383.** Manganese-phenothiazine complexes as models of specificity in metal binding. D. C. BORG AND G. C. COTZIAS (intr. by S. COHN). *Brookhaven Natl. Lab.* (Physiol.)

11:00 **384.** Occurrence of a compound in brain containing γ-aminobutyric acid and histidine. J. J. PISANO,* J. D. WILSON,* L. COHEN* AND S. UDENFRIEND. *Natl. Insts. of Health.* (Pharmacol.)

11:15 **385.** Nicotine and GABA on cortical transmission. S. OCHS AND K. HUNT.* *Indiana Univ.* (Physiol.)

11:30 **386.** Elevation of γ-aminobutyric acid (GABA) in brain with hydroxylamine (NH_2OH). CLAUDE F. BAXTER* AND EUGENE ROBERTS. *City of Hope Med. Ctr.* (Biochem.)

Thursday Afternoon, April 14, 1:30 p.m.

Atherosclerosis II: Human Studies

THURS. P.M.—MORRISON HOTEL, TERRACE CASINO

Chairman: T. B. Van Itallie

1:30 **387.** Serum lipids and electrophoretic patterns of patients receiving multiple intravenous infusions of a triglyceride emulsion. H. C. MENG, J. S. KALEY AND J. L. SHAPIRO (intr. by W. J. CHEATHAM). *Vanderbilt Univ.* (Pathol.)

1:45 **388.** Atherosclerosis in St. Louis: a comparative gross study of aortas. A. A. DIMAKULANGAN,* J. OWEN BLACHE* AND R. M. O'NEAL. *Washington Univ.* (Pathol.)

2:00 **389.** Arteriosclerosis in 10,000 autopsies and the possible role of dietary protein. B. O. BARNES, M. RATZENHOFER* AND G. TSCHERNE.* *Path. Inst. Univ. Graz, Austria.* (Physiol.)

2:15 **390.** Electron microscopy of human atherosclerotic lesions. J. C. GEER,* H. C. MCGILL, JR., J. P. STRONG AND R. L. HOLMAN. *Louisiana State Univ.* (Pathol.)

2:30 **391.** Solubility of cholesterol in human serum. DALE A. CLARK AND J. J. FRANKS (intr. by RICHARD W. BANCROFT). *Brooks AFB.* (Physiol.)

2:45 **392.** Effect of neomycin (NEO) on excretion of bile acids in humans. JAMES G. HAMILTON,* O. NEAL MILLER AND GRACE A. GOLDSMITH. *Tulane Univ.* (Nutr.)

3:00 **393.** Hypercholesterolemia: considerations in a rational approach to its treatment. DONALD BERKOWITZ, DAVID SKLAROFF AND WILLIAM LIKOFF (intr. by HARRY GOLDBERG). *Albert Einstein Med. Ctr. and Hahnemann Med. Coll.* (Physiol.)

3:15 **394.** Effects of heparin on transport of intravenously administered lipids. E. KLEIN, S. FINE, W. F. LEVER AND D. D. DUCKETT (intr. by A. COHEN). *Tufts Univ.* (Pathol.)

3:30 **395.** Effect of a medium chain triglyceride on serum lipids in man. SAMI A. HASHIM* AND THEODORE B. VAN ITALLIE. *St. Luke's Hosp., New York.* (Nutr.)

3:45 **396.** Effect of carbohydrates of leguminous seeds, wheat and potatoes on serum cholesterol in man. JOSEPH T. ANDERSON, FRANCISCO GRANDE AND ANCEL KEYS.* *Univ. of Minnesota and Hastings State Hosp.* (Nutr.)

4:00 **397.** Serum lipids as related to previous diet. R. E. BLEILER, E. S. YEARICK, N. S. SPRINGER AND H. STEVENS (intr. by M. A. Ohlson). *State Univ. of Iowa.* (Nutr.)

4:15 **398.** Influence of avocados on serum cholesterol. WILSON C. GRANT. *VA Hosp. and Univ. of Miami.* (Physiol.)

Endocrine X: Anterior Pituitary

THURS. P.M.—MORRISON, COTILLION ROOM

Chairman: D. J. Ingle

1:30 **399.** The unusually potent action of the carcinogen 3-methylcholanthrene on the pituitary-adrenal system in the rat. W. R. JONDORF,* R. P. MAICKEL* AND B. B. BRODIE. *Natl. Insts. of Health.* (Pharmacol.)

1:45 **400.** A simplified method for the preparation of ACTH. L. L. ROSENBERG AND E. S. EVANS.* *Univ. of California.* (Biochem.)

2:00 **401.** Stimulation of amino acid transport in muscle by oxycel ACTH in vitro. J. L. KOSTYO* AND F. L. ENGEL. *Duke Univ.* (Physiol.)

2:15 **402.** Inability of the pituitary homotransplanted to the kidney capsule to secrete ACTH in male rats. R. FOSTER, JR.* AND I. ROTHCHILD. *Western Reserve Univ.* (Physiol.)

2:30 **403.** Nuclei per mm^3 of skeletal muscle in normal adult

and pituitary giant female rats. J. D. EMERSON AND G. M. EMERSON.* *Univ. of Alabama.* (Physiol.)

2:45 **404.** Effects of growth hormone on incorporation and transfer of N^{15} from ammonium citrate. TRIESTE VITTI* AND O. H. GAEBLER. *Henry Ford Hosp.* (Biochem.)

3:00 **405.** Hormonal replacement of photoperiod as a stimulus for growth in a lizard. ANTHONY DI MAGGIO, III (intr. by L. A. TOTH). *Louisiana State Univ.* (Physiol.)

3:15 **406.** Activation of a coordinated response in hydra by reduced glutathione or proteases. HOWARD M. LENHOFF (intr. by E. L. CHAMBERS). *Howard Hughes Med. Inst.* (Physiol.)

3:30 **407.** Spleen in relation to hormonal activity. F. R. GUASTELLA, L. J. TRECIOKAS AND S. F. MAROTTA (intr. by S. R. M. REYNOLDS). *Univ. of Illinois.* (Physiol.)

3:45 **408.** Initiation of lactation in rats by nonspecific stresses. CHARLES S. NICOLL (intr. by B. V. ALFREDSON). *Michigan State Univ.* (Physiol.)

4:00 **409.** Release of prolactin from the anterior pituitary by neurohormones, drugs, hypothalamic tissue and other agents. JOSEPH MEITES AND T. F. HOPKINS.* *Michigan State Univ.* (Physiol.)

4:15 **410.** Initiation and maintenance of milk secretion in the rat following chlorpromazine administration. P. K. TALWALKER (intr. by C. A. HOPPERT). *Michigan State Univ.* (Nutr.)

Blood Clotting V

THURS. P.M.—MORRISON, PARLORS B AND C

Chairman: W. H. Seegers

1:30 **411.** Mechanism of bovine and human plasminogen activation by human plasmin and streptokinase. W. F. BLATT,* J. ZYLBER,* J. L. GRAY* AND H. JENSEN. *Army Med. Res. Lab.* (Biochem.)

1:45 **412.** Qualitative differences between action of various plasminogen activators on human plasma and on fibrin clots. W. D. SAWYER,* N. ALKJAERSIG,* A. P. FLETCHER* AND S. SHERRY. *Washington Univ.* (Physiol.)

2:00 **413.** Fibrinolysis and arginine release: inhibition studies. S. I. COHEN AND R. WARREN (intr. by R. M. FERRY). *Harvard Univ.* (Biochem.)

2:15 **414.** Purification of *Aspergillin O*, a new mold fibrinolytic agent. D. ADAMIS,* M. STEFANINI, J. F. HORACE* AND H. M. MARIN.* *Tufts Univ.* (Physiol.)

2:30 **415.** Biological properties of *Aspergillin O*, a new mold fibrinolytic agent. E. SOARDI,* M. STEFANINI AND D. ADAMIS.* *Tufts Univ.* (Pathol.)

2:45 **416.** Comparative activity in vivo of three fibrinolytic agents: plasmin, trypsin and *Aspergillin O*. H. MARIN,* M. STEFANINI, L. MUELLER* AND D. ADAMIS.* *Tufts Univ.* (Immunol.)

3:00 **417.** Thromboelastographic studies of fibrinolysis in rats fed diets containing butter versus pure saturated fatty acids. R. F. SCOTT, W. A. THOMAS AND K. I. ALOUSI. *Albany Med. Coll.* (Pathol.)

3:15 **418.** Fibrinolytic effect of plasmin-antiplasmin complex. C. M. AMBRUS, N. BACK AND J. L. AMBRUS. *Univ. of Buffalo.* (Physiol.)

3:30 **419.** A mechanism of pathological spontaneous fibrinolysis in man. A. J. JOHNSON, J. NEWMAN AND D. P. SCHOICKET (intr. by L. W. EICHNA). *New York Univ.* (Physiol.)

3:45 **420.** Some changes in coagulant and fibrinolytic potentials following sudden death. J. M. MCKENZIE, M. M. GUEST AND D. R. CELANDER (intr. by E. L. PORTER). *Sch. of Aviation Med. and Univ. of Texas.* (Physiol.)

4:00 **420a.** Clinical pharmacology and therapeutic results with various types of fibrinolytic therapy. J. L. AMBRUS, C. M. AMBRUS, J. E. SOKAL, L. STUTZMAN,* G. MARKUS,* N. BACK, D. L. KLINE, AND J. B. FISHMAN.* *Univ. of Buffalo and Yale Univ.* (Pharmacol.)

Neuropharmacology VII

THURS. P.M.—PALMER HOUSE, GRAND BALLROOM

Chairman: A. Marrazzi

1:30 **421.** Steroid suppression of LSD induced behavior changes in rats. J. R. BERGEN AND G. G. PINCUS. *Worcester Fndn.* (Physiol.)

1:45 **422.** LSD alteration of optic potentials (cat lateral geniculate); block by schizophrenic serum. STEPHEN S. FOX (intr. by R. W. GERARD). *Univ. of Michigan.* (Physiol.)

2:00 **423.** Lack of correlation between the psychopharmacologic and anticholinesterase effect of LSD and its congeners. ELMER K. ZSIGMOND,* FRANCIS F. FOLDES AND VERA FOLDES.* *Mercy Hosp. and Univ. of Pittsburgh.* (Pharmacol.)

2:15 **424.** LSD-25 and brain serotonin in reserpinized rat. D. X. FREEDMAN (intr. by N. J. GIARMAN). *Yale Univ.* (Pharmacol.)

2:30 **425.** Biochemical aspects of 'LSD-psychosis.' D. V. SIVA SANKAR (intr. by F. COTUI). *Creedmoor State Hosp.* (Pharmacol.)

2:45 **426.** Antagonism of behavioral effects of lysergic acid diethylamide by pretreatment with chlorpromazine. OAKLEY S. RAY* AND AMEDEO S. MARRAZZI. *VA Res. Labs., Pittsburgh.* (Pharmacol.)

3:00 **427.** Biochemical and EEG changes caused by α-methyltryptamine (IT 403). W. G. VAN METER,* G. F. AYALA,* E. COSTA AND H. E. HIMWICH. *Galesburg State Res. Hosp.* (Pharmacol.)

3:15 **428.** Effect of reserpine on urinary tryptamine and indole-3 acetic acid excretion in mental deficiency, schizophrenia and phenylpyruvic oligophrenia. G. W. G. BRUNE* AND H. E. HIMWICH. *Galesburg State Res. Hosp.* (Pharmacol.)

3:30 **429.** Metabolism of hallucinogenia tryptamine derivatives. S. SZARA, E. HEARST AND F. PUTNEY (intr. by J. AXELROD). *Natl. Insts. of Health.* (Pharmacol.)

3:45 **430.** Effect of certain neuropharmacologic agents on brain acetylcholine. GIANCARLO PEPEU* AND NICHOLAS J. GIARMAN. *Yale Univ.* (Pharmacol.)

4:00 **431.** Metabolism of norepinephrine by rat brain and heart. J. R. CROUT, C. R. CREVELING AND D. CATON (intr. by A. SJOERDSMA). *Natl. Insts. of Health.* (Pharmacol.)

4:15 **432.** Effects of reserpine and iproniazid on hypothalamic neurosecretion. BRUNO MINZ. *Univ. of Paris.* (Pharmacol.)

Friday Morning, April 15, 9:00 a.m.

SYMPOSIUM: New and Neglected Hormones

FRI. A.M.—MORRISON, CONSTITUTION ROOM

Chairman: Paul L. Munson

9:00 **433.** Melatonin. AARON B. LERNER. *Yale Univ.*
9:30 Discussion of Dr. Lerner's paper
9:45 **434.** Recent advances in parathyroid hormone research. PAUL L. MUNSON. *Harvard Univ.*
10:15 Discussion of Dr. Munson's paper
10:30 **435.** The epiphysis cerebri in the control of steroid secretion. GORDON FARRELL. *Western Reserve Univ.*
11:00 **436.** Regulation of aldosterone secretion. FREDERIC C. BARTTER. *Natl. Heart Inst.*
11:30 Discussion of papers by Drs. Farrell and Bartter

Tissue Culture IV: Neoplasms

FRI. A.M.—BLACKSTONE, CRYSTAL BALLROOM

Chairman: H. Koprowski

9:00 **437.** Chromatographic fractionation of RNA from microsomes and pH 5 enzyme of leukemia cells. HILTON B. LEVY AND RICHARD LYNT, JR. (intr. by KARL HABEL). *Natl. Insts. of Health.* (Immunol.)

9:15 **438.** Use of heterologous transplants for detection of oncogenic effect of Rous Sarcoma Virus. M. MICHAEL SIGEL, THOMAS M. SCOTTI,* VICTOR SCHULZ* AND THEODORE BURNSTEIN.* *Univ. of Miami and Variety Children's Res. Fndn.* (Immunol.)

9:30 **439.** Relation of polyoma virus to tumor in vivo. KARL HABEL. *Natl. Insts. of Health.* (Immunol.)

9:45 **440.** Intrauterine infection of polyoma virus. C. P. LI AND W. G. JAHNES. *Natl. Insts. of Health.* (Immunol.)

10:00 **441.** Fibrosarcomas in hamsters at site of injection following intracerebral or subcutaneous administration of S. E. polyoma virus. FLAVIU C. S. ROMANUL,* BERNARD ROIZMAN AND CHARLES N. LUTTRELL.* *Johns Hopkins Univ.* (Immunol.)

10:15 **442.** Tumor formation, antibody response and recovery of S. E. polyoma virus from tumors in the Syrian hamster. BERNARD ROIZMAN AND PHILIP R. ROANE, JR.* *Johns Hopkins Univ.* (Immunol.)

10:30 **443.** Immunization against Ehrlich ascites carcinoma nitrogen mustard treated cells. DAVID M. DONALDSON AND JAMES A. NORTH.**Brigham Young Univ.* (Immunol.)

10:45 **444.** Nuclear and cytoplasmic relationships between normal and malignant tissue cultures. H. J. PHILLIPS, R. V. ANDREWS* AND V. SKANK.* *Creighton Univ.* (Physiol.)

11:00 **445.** A complement-dependent system of normal serum lethal to mouse tumor cells. M. LANDY, J. G. MICHAEL,* R. J. TRAPANI,* B. ACHINSTEIN,* M. W. WOODS* AND M. J. SHEAR.* *Natl. Insts. of Health.* (Immunol.)

11:15 **446.** Protein metabolism in Walker carcinoma 256 cells in tissue culture. MORRIS GREEN* AND LEON L. MILLER. *Univ. of Rochester.* (Biochem.)

11:30 **447.** Immunologic enhancement of sarcoma I. R. S. WEISER AND K. KIM.* *Univ. of Washington.* (Immunol.)

Atherosclerosis III: Experimental Animals

FRI. A.M.—MORRISON, TERRACE CASINO

Chairman: George V. Mann

9:00 **448.** Effect of vagus stimulation on blood lipid levels in the baboon: effect on cholesterol ester levels. N. T. WERTHESSEN. *Southwest Fndn.* (Physiol.)

9:15 **449.** Effect of vagus stimulation on blood lipid levels in the baboon: effect on total fatty acids. DAVID H. BAEDER AND JOSEPH SEIFTER. *Wyeth.* (Pharmacol.)

9:30 **450.** Development of atheromatous disease in cebus monkeys using saturated and unsaturated fats. ROBERT W. WISSLER, LAURENCE E. FRAZIER,* RANDOLPH H. HUGHES* AND RICHARD A. RASMUSSEN.* *Univ. of Chicago.* (Pathol.)

9:45 **451.** Decompensation of sterol metabolism in monkeys. GEORGE V. MANN. *Vanderbilt Univ.* (Nutr.)

10:00 **452.** Hypercholesteremia and absence of atheroma in the gerbil. SAMUEL GORDON AND WALTER P. CEKLENIAK (intr. by PAUL H. BELL). *Amer. Cyanamid.* (Biochem.)

10:15 **453.** A quantitative analysis of the development of experimental canine atherosclerosis. LEROY E. DUNCAN, JR., KATHERIN BUCK AND ALMORRIS LYNCH (intr. by BERT R. BOONE). *Natl. Insts. of Health.* (Physiol.)

10:30 **454.** Influence of exercise on experimental atherosclerosis of hens fed an 'atherogenic' diet. HARRY Y. C. WONG, BEATRICE LIU, ROSE SHIM AND FRANK B. JOHNSON (intr. by S. N. STEIN). *Howard Univ. and Armed Forces Inst. of Pathol.* (Physiol.)

10:45 **455.** Effect of estrogen and estrogen-like compounds on atherosclerosis in cholesterol-fed cockerels. WILLIAM PECK, WILLIAM WOODS AND MICHAEL RADAKOVICH (intr. by J. L. ORBISON). *Univ. of Rochester.* (Pathol.)

11:00 **456.** Therapeutic studies on spontaneous atherosclerosis in pigeons. T. B. CLARKSON AND H. B. LOFLAND (intr. by M. A. SWANSON). *Bowman Gray School of Med.* (Biochem.)

11:15 **457.** Cholesterol response in rabbits of various breeds and hybrids. ELIZABETH GAMAN AND DEWITT HENDEE SMITH (intr. by CHARLES W. MUSHETT). *New Jersey Neuro-Psychiatric Inst.* (Pathol.)

11:30 **458.** A correlative study of dietary, serum and tissue cholesterol in rabbits. J. M. MERRILL (intr. by G. R. MENEELY). *VA Hosp., Nashville.* (Pathol.)

Neuropharmacology VIII

FRI. A.M.—PALMER HOUSE, GRAND BALLROOM

Chairman: E. A. Swinyard

9:00 **459.** Influence of reserpine and bulbocapnine on tonic extensor seizures in mice. GRAHAM CHEN AND BARBARA BOHNER.* *Parke, Davis.* (Pharmacol.)

9:15 **460.** Anticonvulsant properties of 2-formyl-phenoxy-acetic acid towards hydrazides. C. O. SIEBENMANN AND C. BARBARA.* *Univ. of Toronto.* (Pharmacol.)

9:30 **461.** A comparison of the anticonvulsant properties of lidocaine and dl-N-methylpipecolyl-2,6-xylidide (Carbocaine). C. A. BERRY,* J. H. SANNER* AND H. H. KEASLING. *State Univ. of Iowa.* (Pharmacol.)

9:45 **462.** Anticonvulsant action of methaminodiazepoxide HCl. E. F. KEITH AND G. A. ARDOLINE (intr. by W. B. SCHALLEK). *Hoffmann-La Roche.* (Pharmacol.)

10:00 **463.** Anticonvulsant properties and metabolic aspects of N-alkyl substituted benzilic amides. J. R. ALBERT* AND J. H. WEIKEL, JR. *Mead Johnson.* (Pharmacol.)

10:15 **464.** Iproniazid reinforcement of anticonvulsants. HELEN C. Y. YEN, ARTHUR J. SILVERMAN AND ANITA SALVATORE (intr. by T. O. KING). *Ortho Res. Fndn.* (Pharmacol.)

10:30 **465.** Pyrogenic effect of *S. typhosa* lipopolysaccharide injected into the lateral cerebral ventricles in cats. U. K. SHETH,* W. G. CLARK,* R. ROSENSTEIN* AND H. L. BORISON. *Univ. of Utah.* (Pharmacol.)

10:45 **466.** Permeability of the blood-cerebrospinal fluid barrier in the dogfish to sulfanilic acid and *p*-aminohippurate. David P. RALL AND CHARLES G. ZUBROD. *Natl. Insts. of Health and Mt. Desert Island Biol. Lab.* (Pharmacol.)

11:00 **467.** Biliary excretion of DL-epinephrine metabolites. ELWOOD H. LABROSSE AND GEORG HERTTING (intr. by S. S. KETY). *Natl. Insts. of Health.* (Pharmacol.)

11:15 **468.** Effects of reserpine, noradrenaline and inhibitors on the metabolic rate of rats. G. E. JOHNSON AND E. A. SELLERS (intr. by G. H. W. LUCAS). *Univ. of Toronto.* (Pharmacol.)

Friday Afternoon, April 15, 1:00 p.m.

Atherosclerosis IV: Factors Affecting Serum Lipids

FRI. P.M.—MORRISON, TERRACE CASINO

Chairman: M. K. Horwitt

1:00 **469.** Sex differences in plasma lipids in rats. RUTH OKEY AND ELAINE W. LIS.* *Univ. of California.* (Nutr.)

1:15 **470.** Effect of dietary protein and sulfur-containing amino acids on serum cholesterol in the rat. J. C. SEIDEL,* N. NATH,* A. E. HARPER AND C. A. ELVEHJEM. *Univ. of Wisconsin.* (Biochem.)

1:30 **471.** Effect of calcium on serum lipids in rabbits. J. M. IACONO, J. F. MUELLER AND C. B. AMMERMAN (intr. by C. J. KOEHN). *Univ. of Cincinnati.* (Nutr.)

1:45 **472.** Hypocholesteremic potency of orotic acid in the primate. L. C. FILLIOS* AND S. B. ANDRUS. *Harvard Univ.* (Pathol.)

2:00 **473.** Nicotinic acid and serum cholesterol in the dog. FRANCISCO GRANDE AND DONALD S. AMATUZIO.* *Mount Sinai Hosp. and Univ. of Minnesota.* (Nutr.)

2:15 **474.** Effects of water-soluble esters of soybean sterols on cholesterol levels in blood and liver. DAVID C. HERTING AND PHILIP L. HARRIS. *Distillation Products Inds.* (Nutr.)

2:30 **475.** Inhibition of conversion of 24-dehydrocholesterol to cholesterol by MER-29. J. AVIGAN, D. STEINBERG, M. J. THOMPSON AND E. MOSETTIG (intr. by R. S. GORDON). *Natl. Insts. of Health.* (Physiol.)

2:45 **476.** Effects of β-diethylaminoethyl diphenyl propylacetate hydrochloride (SKF No. 525-A) on biosynthesis and distribution of cholesterol in the rat. EDWARD G. RICE* AND SAMUEL M. GREENBERG. *Smith, Kline & French.* (Nutr.)

3:00 **477.** Cholesterol-lowering action of the combination of MK-135 and benzmalecene in cockerels and dogs. DAVID M. TENNENT, GUNTHER W. KURON,* MARY E. ZANETTI* AND WALTHER H. OTT. *Merck.* (Biochem.)

Endocrine XI: Posterior Pituitary, Pineal, Androgens

FRI. P.M.—MORRISON, COTILLION ROOM

Chairman: R. C. de Bodo

1:00 **478.** Pharmacological characterization and tentative identification of neurohypophysial hormones in fish. WILBUR H. SAWYER, ROBERT A. MUNSICK* AND H. B. VAN DYKE. *Columbia Univ.* (Physiol.)

1:15 **479.** Release of posterior pituitary hormone in rats by nicotine and lobeline. R. S. GREWAL,* F. C. LU AND M. G. ALLMARK.* *Dept. of Natl. Health and Welfare, Ottawa.* (Pharmacol.)

1:30 **480.** Metabolism of antidiuretic hormone in dogs. H. D. LAUSON AND M. BOCANEGRA.* *Albert Einstein Coll. of Med.* (Physiol.)

1:45 **481.** Functional and anatomical integrity of adrenal cortices not dependent upon the structural integrity of the hypothalamus and midbrain. D. M. WITT* AND A. D. KELLER. *U. S. Army Med. Res. Lab.* (Physiol.)

2:00 **482.** Aldosterone secretion following hemorrhage in hypophysectomized dogs. P. J. MULROW* AND W. F. GANONG. *VA Hosp., West Haven, Yale Univ. and Univ. of California.* (Physiol.)

2:15 **483.** Extraction of blood melanophore hormone activity. ROBERT S. TEAGUE AND JANE REID PATTON.* *Univ. of Alabama.* (Pharmacol.)

2:30 **484.** Quantitative in vivo assay of pineal melanophore contracting principle (melatonin). E. A. LAZO-WASEM* AND CLAIRE E. GRAHAM. *Wilson Labs.* (Biochem.)

2:45 **485.** Effect of O-methylation and other substitutions of indoles on lightening of frog melanocytes. JAMES D. CASE AND M. RUTH WRIGHT (intr. by GEORGE R. COWGILL). *Yale Univ.* (Biochem.)

3:00 **486.** Effects of 17-ethyl-19-nortestosterone on hydrocortisone-induced changes of rat bone. JOSEPH GROSSMAN, HOWARD SCHWARTZ, JOSEPH SAMACHSON AND HERTA SPENCER (intr. by PHILIP LIEF). *Montefiore Hosp.* (Pharmacol.)

3:15 **487.** Androgen and protein nutritional influences on nitrogen balance. PAUL F. BRANDE* AND J. H. LEATHEM. *Rutgers Univ.* (Physiol.)

3:30 **488.** The C^{14}-labeled steroid appearing in rat ventral prostate after administration of testosterone-4-C^{14}. B. W. HARDING AND L. T. SAMUELS (intr. by DON H. NELSON). *Univ. of Utah and Univ. of Cambridge.* (Physiol.)

3:45 **489.** Purification and further characterization of the TPN-specific 17-β-hydroxy (testosterone) dehydrogenase. GERALD L. ENDAHL* AND CHARLES D. KOCHAKIAN. *Univ. of Alabama.* (Physiol.)

Endocrine XII: Female Sex Hormones

FRI. P.M.—MORRISON, VENETIAN ROOM

Chairman: S. B. Barker

1:00 **490.** Characterization of mammalian sex hormones in the invertebrates. CHARLES R. BOTTICELLI, FREDERICK L. HISAW, JR., AND HERBERT H. WOTIZ (intr. by F. L. HISAW). *Harvard Univ., Boston Univ. and Univ. of Washington.* (Physiol.)

1:15 **491.** Interaction of effects of pinealectomy and constant light in the female rat. R. J. WURTMAN, W. ROTH, M. D. ALTSCHULE AND J. J. WURTMAN (intr. by R. O. GREEP). *Harvard Univ.* (Physiol.)

1:30 **492.** Water and electrolytes in rat deciduoma. HELENE C. CECIL,* T. R. WRENN,* JOEL BITMAN* and J. F. SYKES. *U. S. Dept. of Agriculture.* (Physiol.)

1:45 **493.** Effect of steroid supplementation on life span of the female rat. G. M. EMERSON AND J. D. EMERSON (intr. by JOHN M. BRUHN). *Univ. of Alabama.* (Physiol.)

2:00 **494.** Chemical estimation of plasma estrogens. HAROLD J. NICHOLAS AND ROSEMARY SCHREPFER (intr. by N. J. WADE). *Univ. of Kansas.* (Physiol.)

2:15 **495.** Direct measurement of estrogens (Es) in the ovary (O) and ovarian venous blood (OVB) in the rat as an assay for LH. C. JOHNSON, R. FRANKLIN, V. CRITCHLOW, H. LIPSCOMB, G. CLAYTON AND R. GUILLEMIN (intr. by W. KRIVOY). *Baylor Univ.* (Pharmacol.)

2:30 **496.** Changes in uterine free amino acid pattern after estrogen treatment. SUMNER M. KALMAN AND MARGARET E. LOMBROZO.* *Stanford Univ.* (Pharmacol.)

2:45 **497.** Biological half-life of LH, PMS and HCG in the rat. ALBERT F. PARLOW (intr. by L. P. WILSON). *Vincent Mem. Hosp. and Harvard Univ.* (Physiol.)

3:00 **498.** In vitro progesterone synthesis by swine corpora lutea. G. W. DUNCAN,* W. R. HEARN* AND R. M. MELAMPY. *Iowa State Univ.* (Physiol.)

3:15 **499.** Effects of hormones and strain of rat on incidence of the hemorrhagic syndrome in male rats fed irradiated beef. OM P. MALHOTRA* AND ELWOOD F. REBER. *Univ. of Illinois.* (Nutr.)

Neuropharmacology IX

FRI. P.M.—PALMER HOUSE, GRAND BALLROOM

Chairman: J. R. Brobeck

1:00 **500.** Effect of 5-hydroxytryptamine on cholinesterase activity. M. H. APRISON. *Indiana Univ.* (Physiol.)

1:15 **501.** Explanation of adrenergic potentiation and blockade by cholinergic mechanisms. MELVILLE W. OSBORNE, IRENE L. WOESSNER AND KATHERINE NAEFF (intr. by W. W. SWINGLE). *Geigy Res. Labs.* (Physiol.)

1:30 **502.** Brain acetylcholine-acetylcholinesterase-choline acetylase system in respiratory control. BERNARD METZ. *Med. Coll. of South Carolina.* (Physiol.)

1:45 **503.** Comparison of chemical and biological determination of brain catecholamines. G. R. PSCHEIDT AND CLARA MORPURGO (intr. by H. E. HIMWICH). *Galesburg State Res. Hosp.* (Physiol.)

2:00 **504.** Determination of urinary 3-methoxy-4-hydroxymandelic acid in man. V. K. WEISE,* R. K. MCDONALD AND E. H. LABROSSE.* *Natl. Insts. of Health.* (Physiol.)

2:15 **505.** Norepinephrine and serotonin brain levels at various stages of ontogenetic development. N. T. KARKI,* R. KUNTSMAN* AND B. B. BRODIE. *Natl. Insts. of Health.* (Pharmacol.)

2:30 **506.** Impairment of catecholamine binding sites in brain by reserpine. R. KUNTZMAN AND S. SPECTOR (intr. by B. B. BRODIE). *Natl. Insts. of Health.* (Pharmacol.)

2:45 **507.** Inhibition of uptake of epinephrine in brain slices by reserpine. ELWOOD TITUS, CEDRIC W. M. WILSON* AND HANS J. DENGLER.* *Natl. Insts. of Health.* (Pharmacol.)

3:00 **508.** Alteration of epinephrine metabolism in man. O. RESNICK, M. HAGOPIAN AND H. FREEMAN (intr. by GEORGE P. FULTON). *Worcester Fndn.* and *Medfield State Hosp.* (Physiol.)

3:15 **509.** Cerebral free and bound serotonin (5HT) after iproniazid (IIH) and reserpine (R). MELVYN I. GLUCKMAN. *VA Res. Labs.* Pittsburgh, Pa. (Pharmacol.)

3:30 **510.** Bioassay of 5-hydroxytrypamine on heart of Venus mercenaria. A. R. MCINTYRE, DAVID E. WILLIAMS* AND F. L. HUMOLLER.* *Univ. of Nebraska.* (Physiol.)

Exhibits—Inspection Periods

Monday: 8:00 A.M. to 5:00 P.M.

Tuesday through Thursday: 8:45 A.M. to 5:00 P.M.

Friday: 8:45 A.M. to 12:00 noon

American Physiological Society

Eighty-third Meeting

Monday Morning, April 11, 9:00 a.m.

Cardiac Excitability

MON. A.M.—MORRISON, GRAND BALLROOM

Chairman: B. F. Hoffman

9:00 **511.** Some aspects of cardiac excitability. B. F. HOFFMAN. *State Univ. of New York.*

9:30 **512.** Ventricular thresholds for nonrectangular electrical stimuli. GUY KNICKERBOCKER AND WILLIAM R. MILNOR (intr. by SAMUEL A. TALBOT). *Johns Hopkins Univ.*

9:45 **513.** Transmembrane action potentials of specialized fibers in rat heart. ZIA J. PENEFSKY* AND BRIAN F. HOFFMAN. *State Univ. of New York.*

10:00 **514.** Intracellular action potentials and contractions of human atrial strips in vitro. WILLIAM SLEATOR, JR., T. DE GUBAREFF* AND V. KRESPI.* *Washington Univ.*

10:15 **515.** Differences in effect of electrolytes on atrial and ventricular action potentials of isolated, perfused rabbit hearts. E. LEPESCHKIN, B. SURAWICZ* AND H. C. HERRLICH.* *Univ. of Vermont.*

10:30 **516.** Nonuniform two-dimensional electrotonic spread in rat atrium. W. E. CRILL* AND J. W. WOODBURY. *Univ. of Washington.*

10:45 **517.** Membrane depolarization and contraction in auricle. FREDERIC KAVALER (intr. by E. E. SUCKLING). *State Univ. of New York.*

11:00 **518.** Enhancement of potassium-induced A-V block by prior intoxication with digitoxin. CHARLES FISCH, B. L. MARTZ AND FRED H. PRIEBE (intr. by KENNETH G. KOHLSTAEDT). *Lilly Lab., Marion Co. Gen. Hosp. and Indiana Univ.*

11:15 **519.** Depression of tension by current applied during the absolute refractory period of heart muscle. ALLAN J. BRADY (intr. by JOHN FIELD). *Univ. of California.*

11:30 **520.** Possibility of junctional transmission in cardiac muscle. NICK SPERELAKIS AND T. HOSHIKO (intr. by D. B. HACKEL). *Western Reserve Univ.*

11:45 **521.** Accommodation in the mammalian heart. C. MCC. BROOKS, J. L. GILBERT, G. LANGE AND E. E. SUCKLING. *State Univ. of New York.*

Reflexes

MON. A.M.—MORRISON, CONSTITUTION ROOM

Chairman: M. G. F. Fuortes

9:00 **522.** Supraspinal posttetanic facilitation of galvanic skin reflex in anesthetized cats. G. H. WANG. *Univ. of Wisconsin.*

9:15 **523.** Ocular compression causing CNS reactions other than the oculo-cardiac reflex. E. ASERINSKY AND D. DEBIAS (intr. by D. J. SANDWEISS). *Jefferson Med. Coll.*

9:30 **524.** Relation between reflex and reaction time. PETER V. KARPOVICH AND MICHIO IKAI. *Springfield Coll. and Univ. of Tokyo.*

9:45 **525.** Effects of lateral rectus muscle contraction upon intraocular pressure. N. KRISHNA (intr. by S. Y. BOTELHO). *Univ. of Pennsylvania.*

10:00 **526.** Histochemical indication of reciprocal inhibition. ERNEST RETZLAFF,* BENJAMIN PASAMANICK,* JOAN FONTAINE,* AND CHAUNCEY LEAKE. *Ohio State Univ.*

10:15 **527.** Influence of periodic lung inflation on respiratory periodicity. MORTON I. COHEN (intr. by W. W. DOUGLAS). *Albert Einstein Coll. of Med.*

10:30 **528.** Changes in activities of respiratory neurons produced by stimulation of muscle afferents. K. KOIZUMI, J. USHIYAMA* AND C. MCC. BROOKS. *State Univ. of New York.*

10:45 **529.** Force patterns necessary for reflex control of movement. LLOYD D. PARTRIDGE (intr. by J. F. FULTON). *Yale Univ.*

11:00 **530.** Action of tetanus toxin on recurrent conditioning. V. J. WILSON, F. P. J. DIECKE* AND W. H. TALBOT.* *Rockefeller Inst.*

11:15 **531.** Reflexes in spinal cords which have recovered from asphyxiation. A. VAN HARREVELD AND D. SPINELLI. *California Inst. of Technol.*

11:30 **532.** Reciprocal innervation of paravertebral musculature. JOHN N. EBLE (intr. by I. M. KORR). *Kirksville Coll. of Osteopathy.*

Respiration Control

MON. A.M.—MORRISON, MADISON ROOM

Chairman: J. F. Perkins

9:00 **533.** Experience with a new respiratory center stimulant. SAMI I. SAID (intr. by JOHN L. PATTERSON, JR.). *Med. Coll. of Virginia.*

9:15 **534.** 4th ventricle respiratory chemosensitivity and the area postrema. R. A. MITCHELL, W. MASSION, C. T. CARMAN AND J. W. SEVERINGHAUS (intr. by L. L. BENNETT). *Univ. of California.*

9:30 **535.** Further evidence for independent, additive action of arterial P_{CO_2} and (H+) as ventilatory stimuli. ROBERT G. STAGMAN,* DANIEL T. JOHNSON,* THOMAS A. STOCKERT* AND JOHN F. PERKINS, JR. *Univ. of Chicago.*

9:45 **536.** Transient effect of sudden mild hypoxia on respiration. THOMAS F. HORNBEIN* AND ALBERT ROOS. *Washington Univ.*

10:00 **537.** Interaction of hypoxia and hypercapnia at the carotid bodies in chemoreflex stimulation of breathing. EDWARD S. OTEY AND THEODORE BERNTHAL (intr. by F. W. KINARD). *Med. Coll. of South Carolina.*

10:15 **538.** Influence of gas mixtures on a grouped type of periodic breathing. ROBERT T. SCHOPP. *Univ. of Colorado.*

10:30 **539.** Circulatory and respiratory adjustments to experimental diving in the alligator. H. T. ANDERSEN (intr. by H. T. HAMMEL). *Univ. of California and Scripp's Inst. of Oceanography.*

Blood Pressure; Hypertension

MON. A.M.—MORRISON, EMBASSY ROOM

Chairman: G. E. Wakerlin

9:00 **540.** Compensating amplifier for correction of distortion in pressure measurements. FRANK W. NOBLE AND OCTO BARNETT (intr. by DONALD L. FRY). *Natl. Insts. of Health.*

9:15 **541.** Neural and hormonal effects on systemic arterial pressure. MICHAEL F. WILSON, NEVILLE P. CLARKE, ORVILLE A. SMITH AND ROBERT F. RUSHMER (intr. by N. B. EVERETT). *Univ. of Washington.*

9:30 **542.** Baroceptor reflex mechanisms in swine. N. H. BOOTH, H. E. BREDECK AND R. A. HERIN (intr. by C. A. MAASKE). *Colorado State Univ.*

9:45 **543.** Servoanalysis of carotid sinus reflex. A. M. SCHER. *Univ. of Washington.*

10:00 **544.** Vasomotor waves due to increased intracranial pressure. KIICHI SAGAWA (intr. by ALLAN GRAFFLIN). *Univ. of Yokahama, Japan and Univ. of Mississippi.*

10:15 **545.** Are there pressoreceptors in the mesenteric arterial bed? G. O. BOYER AND A. M. SCHER (intr. by H. S. BENNETT). *Univ. of Washington.*

10:30 **546.** Direct recording of Korotkoff sounds in man. DAVID H. LEWIS, SAMI ABOU KHALIL* AND JOHN D. WALLACE.* *Philadelphia Gen. Hosp. and U. S. Naval Air Develop. Ctr.*

10:45 **547.** Cardiovascular responses to starvation and realimentation. G. S. SMITH, M. S. MAMEESH AND B. CONNOR JOHNSON (intr. by R. E. JOHNSON). *Univ. of Illinois.*

11:00 **548.** Experimental renal hypertension in rabbits. C. GIORDANO,* A. H. SAMIY,* F. W. HAYNES* AND J. P. MERRILL. *Peter Bent Brigham Hosp. and Harvard Univ.*

11:15 **549.** Use of pithed rat in evaluation of mechanisms of experimental renal hypertension. ALBERTO C. TAQUINI, JR.,* DAVID F. BOHR, PEDRO BLAQUIER* AND S. W. HOOBLER. *Univ. of Michigan.*

11:30 **550.** Renin and juxtaglomerular cells, components of a regulating system in the kidney. J. JANECEK,* L. TOBIAN, M. OTIS* AND J. HUNEKE.* *Univ. of Minnesota.*

11:45 **551.** Effect of nephrectomy on pressor responses to renin, angiotensin and norepinephrine in the rat. JOHN SCHROEDER,* PEDRO BLAQUIER,* SIBLEY W. HOOBLER AND DAVID F. BOHR. *Univ. of Michigan.*

12:00 **552.** Aldosterone excretion in hypertension. JOSEPHINE B. GARST, N. P. SHUMWAY,* H. SCHWARTZ* AND G. L. FARRELL. *Crile VA Hosp. and Western Reserve Univ.* (Biochem.)

Cellular

MON. A.M.—MORRISON, HOLLYWOOD ROOM

Chairman: H. B. Steinbach

9:00 **553.** Regulation of micronuclear division in *Stentor coeruleus*. E. GUTTES AND S. GUTTES (intr. by R. C. HERRIN). *Univ. of Wisconsin.*

9:15 **554.** Mitochondrial counts based on osmotic swelling. A. T. MILLER, JR. AND L. D. GUNN.* *Univ. of North Carolina.*

9:30 **555.** Soluble ATPase from rat-liver mitochondria. ROBERT E. BEYER. *Tufts Univ.*

9:45 **556.** Effect of riboflavin deficiency and galactoflavin feeding on the mitochondrial flavin content, oxidative phosphorylation, ATPase and ATP-Pi exchange. STANLEY L. LAMBERG, ROBERT E. BEYER AND ARTHUR NEYMAN (intr. by D. RAPPORT). *Tufts Univ.*

10:00 **557.** Effect of CO_2 at benzene-water interfaces. D. F. SEARS AND R. M. EISENBERG (intr. by L. M. N. BACH). *Tulane Univ.*

10:15 **558.** Changes in composition of saliva produced by adrenaline and insulin. K. MARTIN (intr. by A. S. V. BURGEN). *McGill Univ.*

10:30 **559.** Absence of a sodium equilibrium potential in excitation currents of a small isolated region of a frog muscle membrane. AL STRICKHOLM (intr. by N. BREWER). *Univ. of Chicago.*

10:45 **560.** Monosaccharide penetration into human red cells. R. G. FAUST* AND A. K. PARPART. *Princeton Univ.*

11:00 **561.** Penetration of surviving excitable axons by proteases and effects of proteases and phospholipases on so-called membrane resistance and capacity. JULIAN TOBIAS. *Univ. of Chicago.*

Renal

MON. A.M.—PALMER HOUSE, WABASH ROOM

Chairman: K. Hare

9:00 **562.** Distribution of transit times in dog kidney. ROBERT I. MACEY, ZANE MUHL AND A. OMACHI (intr. by A. V. WOLF). *Univ. of Illinois.*

9:15 **563.** Perfusion of dog kidney in situ. KENDRICK HARE, FRANCIS PATTON,* JAMES DONAHOO* AND RUTH S. HARE.* *Univ. of Alabama.*

9:30 **564.** Renal glucose metabolism and its relation to diuresis. W. P. MCCANN. *Univ. of Colorado.* (Pharmacol.)

9:45 **565.** Effect of cyanide on ether-soluble Na and K content of rat kidney slices. JOHN C. VANATTA. *Univ. of Texas.*

10:00 **566.** Release of adenosine compound into blood stream by ischemic kidney. DAVID B. GORDON. *Univ. of Miami.*

10:15 **567.** Mechanism of ammonia excretion by the fish gill. LEON GOLDSTEIN* AND ROY P. FORSTER. *Dartmouth Coll. and Mt. Desert Island Biol. Lab.*

10:30 **568.** Renal excretion of endogenous metabolites in man: glycine effect. HOWARD C. ELLIOTT, JR.* AND H. V. MURDAUGH, JR. *Univ. of Alabama and VA Hosp., Birmingham.*

10:45 **569.** Origin of urinary histamine in rats. K. S. KIM (intr. by D. F. MAGEE). *Univ. of Malaya.*

Monday Afternoon, April 11, 1:30 p.m.

Hypothalamus

MON. P.M.—MORRISON, GRAND BALLROOM

Chairman: G. Sayers

1:30 **570.** Hypothalamic control of ACTH release. G. SAYERS. *Western Reserve Univ.*

2:00 **571.** Counter-current distribution and electrophoresis of CRF, lysine vasopressin and a-MSH. ROGER GUILLEMIN, ANDREW V. SCHALLY,* RICHARD N. ANDERSEN* AND JOHN L. LONG. *Baylor Univ.*

2:15 **572.** Inhibition of adrenal corticoid release in brainstem stimulated cats. MARGARET A. SLUSHER* AND JANE E. HYDE. *Univ. of California.*

2:30 **573.** Isolated brain and ACTH release. E. S. REDGATE (intr. by R. W. ECKSTEIN). *Western Reserve Univ.*

2:45 **574.** Ascorbic acid content of endocrine glands in persistent estrus hypothalamic lesioned rats. SAVINO A. D'ANGELO AND JOSEPH SNYDER.* *Jefferson Med. Coll.*

3:00 **575.** Studies on neural regulation of LH. S. M. MCCANN, S. TALEISNIK* AND H. FRIEDMAN.* *Univ. of Pennsylvania.*

3:15 **576.** Osmotic activation of neurohypophysial milk-ejection reflex in rabbits with 'diencephalic islands.' JOHN W. SUNDSTEN* AND CHARLES H. SAWYER. *Univ. of California.*

3:30 **577.** Midbrain lesions and aldosterone. A. NEWMAN TAYLOR (intr. by J. M. WERLE). *Western Reserve Univ.*

3:45 **578.** Median forebrain bundle and hypothalamic 'feeding' centers. P. J. MORGANE (intr. by S. R. BRUESCH). *Univ. of Tennessee.*

Peripheral Nerve; Synapses

MON. P.M.—MORRISON, CONSTITUTION ROOM

Chairman: G. H. Bishop

1:30 **579.** Motor nerve fiber conduction in tick paralysis. M. F. MURNAGHAN (intr. by L. P. DUGAL). *Univ. of Ottawa.*

1:45 **580.** Segmental and crossed ephaptic transmission in crayfish lateral giant axons. A. WATANABE,* T. G. SMITH* AND H. GRUNDFEST. *Columbia Univ.*

2:00 **581.** Effect of temperature on spontaneous and induced activity of *Periplaneta americana* ventral nerve cord. PARASKEVI J. MAVRIDIS AND R. C. SANBORN (intr. by W. A. HIESTAND). *Purdue Univ.*

2:15 **582.** Impulse at the end of a nerve. DEXTER M. EASTON. *Florida State Univ.*

2:30 **583.** Electrical activities of single ranvier node. H. OOYAMA AND E. B. WRIGHT. *Univ. of Florida.*

2:45 **584.** Role of acetylcholine system in conduction. W. D. DETTBARN (intr. by D. NACHMANSOHN). *Columbia Univ.*

3:00 **585.** Electrical connections between supramedullary neurons. M. V. L. BENNETT (intr. by R. M. TAYLOR). *Columbia Univ.*

Pulmonary Blood Flow I

MON. P.M.—MORRISON, MADISON ROOM

Chairman: H. H. Hecht

1:30 **586.** New method for estimating pulmonary capillary blood flow in man. KARLMAN WASSERMAN AND J. H. COMROE, JR. *Univ. of California.*

1:45 **587.** Estimation of distribution of blood flow in the dog's lung. B. B. ROSS AND L. E. HUSBAND. *Univ. of Oregon.*

2:00 **588.** Theoretical considerations concerning 'heart-lung bypass' procedures. PIERRE-M. GALLETTI* AND GERHARD A. BRECHER. *Emory Univ.*

2:15 **589.** Pulmonary gas exchange during partial heart-lung bypass in closed-chest dogs. MAX A. HOPF, PIERRE-M. GALLETTI AND NACI BOR (intr. by J. HALDI). *Emory Univ.*

2:30 **590.** Radioactive tracer dilution studies in canine heart-lung preparation. D. YUDILEVICH AND C. W. SHEPPARD. *Univ. of Tennessee.*

2:45 **591.** Blood flows in dependent versus nondependent lungs in humans. HOWARD B. KEITH,* GUNNAR SEVELIUS,* PHILLIP C. JOHNSON* AND GILBERT S. CAMPBELL. *Univ. of Oklahoma and VA Hosp.*

3:00 **592.** Hemodynamics of altitude heart failure in calves. HANS H. HECHT, HIROSHI KUIDA, RAMON L. LANGE,* JOSEPH L. THORNE* AND ARTHUR M. BROWN. *Univ. of Utah.*

3:15 **593.** Catecholamines in pulmonary hypertension of acute hypoxia. R. M. GOLDRING, G. M. TURINO, G. COHEN, A. G. JAMESON AND A. P. FISHMAN (intr. by D. W. RICHARDS). *Columbia Univ.*

3:30 **594.** Effect of acute anoxia on pulmonary hemodynamics of the calf. HIROSHI KUIDA, RAMONE L. LANGE,* ARTHUR M. BROWN* AND HANS H. HECHT. *Univ. of Utah.*

3:45 **595.** Analysis of simultaneously recorded alveolar gas and arterial blood P_{O_2} during nitrogen washout. T. N. FINLEY (intr. by B. LIBET). *Univ. of California.*

Shock

MON. P.M.—MORRISON, EMBASSY ROOM

Chairman: R. J. Bing

1:30 **596.** Tolerance of sympathectomized dogs to hemorrhage. SHU CHIEN AND BERNARD HITZIG (intr. by M. I. GREGERSEN). *Columbia Univ.*

1:45 **597.** Vasoactive agents in portal blood during hemorrhagic shock. CARL F. ROTHE* AND EWALD E. SELKURT. *Indiana Univ.*

2:00 **598.** Adrenal corticoids in ischemic shock induced by temporary occlusion of thoracic aorta in dogs. S. S. LEVIN,* D. Y. COOPER, H. M. VARS AND W. M. PARKINS. *Univ. of Pennsylvania.*

2:15 **599.** Levels of plasma bound-iron in experimental shock in the rabbit and dog. A. JANOFF AND L. R. SHAPIRO (intr. by S. BAEZ). *New York Univ.*

2:30 **600.** Effect of a massive transfusion on mobilization or

loss of fluid after hemorrhage. S. DEAVERS,* R. A. HUGGINS AND E. L. SMITH. *Baylor Univ.*

2:45 **601.** Effect of buffering ACD blood with THAM on survival of dogs transfused after massive hemorrhage. GABRIEL G. NAHAS, ARNOLD MITTELMAN* AND WILLIAM M. MANGER. *Columbia Univ.*

3:00 **602.** Comparative protective action of histamine, L-histidine and their metabolites on endotoxin and thermal shock in mice. SIGMUND E. LASKER* AND CHARLES L. FOX, JR. *New York Med. Coll.* (Immunol.)

3:15 **603.** Hemodynamics of canine small bowel during shock. J. K. LONGERBEAM AND R. C. LILLEHEI (intr. by G. FAHR). *Univ. of Minnesota.*

3:30 **604.** Liberation of intestinal serotonin after injection of bacterial endotoxin. R. B. DAVIS, R. K. AUSMAN, W. R. MEEKER, S. J. GEMMILL AND J. B. AUST (intr. by C. J. WATSON). *Univ. of Minnesota.* (Biochem.)

3:45 **605.** Comparison of alteration in intestinal weight during endotoxin shock and partial portal venous occlusion. M. W. MEYER (intr. by M. B. VISSCHER). *Univ. of Minnesota.*

4:00 **606.** Experimental burns in the germfree animal. THOMAS G. WARD AND LOUISE I. LINDHOLM.* *Univ. of Notre Dame.* (Immunol.)

4:15 **607.** Activation of rat serum proteolytic activity following Noble-Collip trauma. LETITIA BEARD* AND JOHN K. HAMPTON, JR. *Tulane Univ.*

Renal Blood Flow

MON. P.M.—PALMER HOUSE, WABASH ROOM

Chairman: R. P. Forster

1:30 **608.** Renal medullary blood flow. LAWRENCE S. LILIENFIELD, HERMAN C. MAGANZINI* AND MARK H. BAUER*. *Georgetown Univ.*

1:45 **609.** Renal medullary blood flow and its relation to renal function. K. THURAU, K. KRAMER, P. DEETJEN AND H. BRECHTELSBAUER (intr. by STEPHEN HAJDU). *Goettingen Univ., Germany.*

2:00 **610.** Autoregulation and pre- and postglomerular resistance changes in the isolated perfused kidney. LERNER B. HINSHAW AND NGUYEN K. THUONG.* *Univ. of Minnesota.*

2:15 **611.** Pressure-flow-distention relationships in the dog kidney. C. R. REPLOGLE,* C. H. WELLS* AND W. D. COLLINGS. *Michigan State Univ.*

2:30 **612.** Autoregulation of renal blood flow resulting from renal damage. JIMMY B. LANGSTON, ARTHUR C. GUYTON AND WILLIAM J. GILLESPIE, JR. (intr. by W. L. WILLIAMS). *Univ. of Mississippi.*

2:45 **613.** Relation of pressure to flow in the intact kidney. R. HARDIN, J. SCOTT AND F. HADDY (intr. by ALLEN LEIN). *U. S. Army Med. Res. Lab.*

3:00 **614.** Localization of intrarenal oxygen tensions by stop-flow. DONALD W. RENNIE. *Univ. of Buffalo.*

3:15 **615.** Instantaneous dimension-pulse and mean dimensional changes in the kidney of awake dogs. G. V. BROWNLEE AND EDWARD W. HAWTHORNE (intr. by JOSEPH L. JOHNSON). *Howard Univ.*

Intersociety Sessions

See program, pages 426–443, for sessions on 'Atherosclerosis', 'Blood Clotting', 'Cytology', 'Endocrinology', 'Gastroenterology', 'Muscle', 'Neuropharmacology and Tissue Culture', and for Intersociety symposia.

Placement Service

Exhibition Hall, fourth floor, Palmer House

Tuesday Morning, April 12, 9:00 a.m.

Cardiac Dynamics I

TUES. A.M.—MORRISON, GRAND BALLROOM

Chairman: R. F. Rushmer

9:00 **616.** Effect of atrial fibrillation on the volume-pressure relationships of the left heart. ROBERT C. LITTLE. *Seton Hall Coll. of Med.*

9:15 **617.** On taking the first derivative of the pulse, and its relation to the ballistocardiogram ISAAC. STARR AND S. OGAWA.* *Univ. of Pennsylvania.*

9:30 **618.** Ballistocardiographic response to hyperthermia. ARTHUR J. MOSS AND BRUCE E. BRADLEY (intr. by A. GRAYBIEL). *U.S. Naval Sch. of Aviation Med.*

9:45 **619.** Relative mitral insufficiency as a factor of paroxysmal pulmonary edema. ALDO A. LUISADA, ALDO JACONO AND MARVIN KAPLAN.* *Chicago Med. Sch.*

10:00 **620.** Influence of supravalvular mitral stenosis of flow and chemical composition of the right thoracic duct in dogs. H. NAMIKI* AND W. E. JAQUES. *Univ. of Oklahoma.* (Pathol.)

10:15 **621.** Central circulation in nephrotics. E. RAPAPORT,* H. YAMAUCHI,* J. GREEN,* E. BROWN AND J. HOPPER.* *Univ. of California and Mt. Zion Hosp.*

10:30 **622.** Effect of heart rate on aortic insufficiency. HOMER R. WARNER AND ALAN F. TORONTO.* *Univ. of Utah and Latter-Day Saints Hosp.*

10:45 **623.** Circulatory response to cytochrome oxidase inhibition in vivo. WILLIAM E. HUCKABEE. *Boston Univ.*

11:00 **624.** Right ventricular volume and pressure in dogs, horses, cattle and swine. E. A. RHODE,* J. P. HOLT, H. KINES* AND S. A. PEOPLES. *Univ. of Louisville and Univ. of California Sch. of Vet. Med.*

11:15 **625.** Evaluation of 'venous return' initiating increased cardiac output. ROBERT F. RUSHMER, DON BAKER* AND ROBERT L. VAN CITTERS.* *Univ. of Washington.*

11:30 **626.** Properties of the carotid sinus mechanism. L. H. PETERSON, E. FEIGL* AND P. GOURAS.* *Univ. of Pennsylvania.*

Cerebral Cortex

TUES. A.M.—MORRISON, CONSTITUTION ROOM

Chairman: E. C. Hoff

9:00 **627.** Firing level and prepotentials in hippocampal neurons. W. A. SPENCER, E. R. KANDEL (intr. by C. SPYROPOULOS). *Natl. Insts. of Health.*

9:15 **628.** Repetitive firing of hippocampal neurons. E. R. KANDEL AND W. A. SPENCER (intr. by W. H. MARSHALL). *Natl. Insts. of Health.*

9:30 **629.** Studies on the supracallosal, mesial cortex of conscious, unanesthetized monkeys. J. R. HUGHES, J. A. MAZUROWSKI* AND J. E. HAUSER.* *Buffalo Med. Sch.*

9:45 **630.** Thalamocortical recruiting responses and relayed discharges in pyramidal tract. D. P. PURPURA AND E. M. HOUSEPIAN.* *Columbia Univ.*

10:00 **631.** Pyramidal cortifugal discharges elicited by ipsilateral cutaneous stimulation. HARRY D. PATTON. *Univ. of Washington.*

10:15 **632.** Inter- and intrahemispheric transmission of tactile gnosis in normal and corpus callosum-sectioned monkeys. F. FRANCIS EBNER AND RONALD E. MYERS (intr. by RICHARD P. MASON). *Walter Reed Army Inst. of Res.* (Immunol.)

10:30 **633.** Cause of brain waves. FREDERIC H. JOHNSON (intr. by E. L. MCCANDLESS). *Univ. of Buffalo.*

10:45 **634.** Use of 'memoscope' for study of evoked potentials of human EEG. JAMES TOMAN AND B. WEISS. *Chicago Med. Sch.*

11:00 **635.** Wireless remote-control miniature microdrive for single neuron recording in the brain. FELIX STRUMWASSER AND JAMES J. GILLIAM (intr. by CHOH LUH LI). *Natl. Insts. of Health.*

Respiration Mechanics I

TUES. A.M.—MORRISON, MADISON ROOM

Chairman: J. L. Whittenberger

9:00 **636.** Laryngeal regulation of airway resistance. CHRISTEN RATTENBORG (intr. by DUNCAN A. HOLADAY). *Bispebjerg Hosp., Copenhagen.*

9:15 **637.** Partitioning of respiratory resistance in man. BENJAMIN G. FERRIS, JR., LIONEL OPIE* AND JERE MEAD. *Harvard Sch. of Publ. Health and Peter Bent Brigham Hosp.*

9:30 **638.** Partition of pulmonary flow resistance into upper and lower airway components. ROBERT E. HYATT AND ROGER E. WILCOX.* *Beckley Mem. Hosp., West Va.*

9:45 **639.** Effect of inhalation of cigarette smoke and broncho-active aerosols on airway conductance. J. A. NADEL,* D. F. TIERNEY* AND J. H. COMROE, JR. *Univ. of California.*

10:00 **640.** Inspiratory 'check valve' obstruction in bullous emphysema. L. C. REED,* AKIO FURUSHO,* THOMAS H. SNIDER* AND BENJAMIN M. LEWIS. *Wayne State Univ. and VA Hosp., Dearborn.*

10:15 **641.** Maximum and minimum airway pressures at various lung volumes in normal children and adults. C. D. COOK AND J. MEAD (intr. by J. L. WHITTENBERGER). *Children's Hosp. Med. Ctr. and Harvard Sch. of Publ. Health.*

10:30 **642.** A new method for measurement of resistance and compliance of the lungs and thorax in man. MALCOLM B. MCILROY, DONALD F. TIERNEY* AND JAY A. NADEL.* *Univ. of California.*

10:45 **643.** Mechanics of breathing during exercise in man. ER YI TING (intr. by M. HENRY WILLIAMS, JR.) *Albert Einstein Coll. of Med.*

11:00 **644.** Effect of acute central vascular congestion on pulmonary compliance of normal subjects. STUART BONDURANT, JERE MEAD, C. D. COOK. *Harvard Sch. of Publ. Health.*

11:15 **645.** Detection of added elastic impedance to breathing. E. J. M. CAMPBELL, S. FREEDMAN, P. S. SMITH AND M. E. TAYLOR (intr. by R. H. SHEPARD). *Middlesex Hosp., London, England.*

11:30 **646.** Effect of external impedances on ventilatory response to carbon dioxide. A. B. GOULD, JR.* AND W. S. FOWLER. *Mayo Clinic and Fndn.*

Active Transport

TUES. A.M.—MORRISON, EMBASSY ROOM

Chairman: C. A. Hogben

9:00 **647.** Movement across cell membranes. C. ADRIAN HOGBEN. *George Washington Univ.*

9:30 **648.** Location of ionic transfer in the dog parotid gland. L. L. LANGLEY AND R. S. BROWN.* *Univ. of Alabama.*

9:45 **649.** Chloride, sodium and inulin spaces of rat digestive glands. L. H. SCHNEYER AND C. A. SCHNEYER. *Univ. of Alabama.*

10:00 **650.** Relationship between ion transport and electrical impedance in gastric mucosa. WARREN H. DENNIS (intr. by WARREN S. REHM). *Univ. of Louisville.*

10:15 **651.** Active chloride transport during intestinal secretion. C. S. TIDBALL (intr. by C. A. M. HOGBEN). *George Washington Univ.*

10:30 **652.** Link between metabolism and active transport of Na in human red cell ghosts. JOSEPH F. HOFFMAN. *Natl. Insts. of Health.*

10:45 **653.** Effects of chlorpromazine on the red cell. R. E. ECKEL. *Western Reserve Univ.*

11:00 **654.** An enzymatic basis for the difference in active cation transport in two genetic types of sheep red cells. D. C. TOSTESON, R. H. MOULTON* AND M. BLAUSTEIN.* *Washington Univ.*

11:15 **655.** Potassium fluxes across the membrane of the Ehrlich mouse ascites tumor cell: evidence for auto-inhibition by external potassium. H. G. HEMPLING. *Cornell Univ.*

11:30 **656.** Amino acid active transport and exchange diffusion in Ehrlich ascites cells. JOHN A. JAQUEZ. *Sloan-Kettering Inst.*

Hypothermia; Hibernation

TUES. A.M.—MORRISON, VENETIAN ROOM

Chairman: L. D. Carlson

9:00 **657.** Automatic temperature compensation of electrodes for measurement of available tissue oxygen during hypothermia. THOMAS G. ARNOLD* AND FRANK GOLLAN. *Vanderbilt Univ. and VA Hosp.*

9:15 **658.** Effects of hypercapnia and hypoxia during hypothermia. MEARL A. KILMORE* AND HAROLD F. CHASE. *Jefferson Med. Coll.* (Pharmacol.)

9:30 **659.** Excretion of sodium and potassium in hypothermia. G. S. KANTER. *Albany Med. Coll.*

9:45 **660.** Effect of cold-stress on acetate metabolism by adipose tissue. JUDITH PATKIN, EDITH PORTER AND E. J. MASORO (intr. by A. CANZANELLI). *Tufts Univ.*

10:00 **661.** Metabolic effects of urea administration on acute hypothermia in rats. JOHN R. BEATON* AND JOHN HUNTER. *Def. Res. Med. Labs., Toronto, Canada.*

10:15 **662.** Effect of DNP on control of anesthetic hypothermia. SHANNON C. ALLEN AND EDWARD L. MCGOVERN.* *Chicago Coll. of Osteopathy.*

10:30 **663.** EEG and heart rates of hypothermic cats. J. A. LIPP,* J. R. KNOTT* AND G. E. FOLK, JR. *Univ. of Iowa.*

10:45 **664.** Relationship of hibernation to contractility and irritability of diaphragm muscle as affected by temperature. FRANK E. SOUTH. *Univ. of Illinois.*

11:00 **665.** Activity of selected glycolytic enzymes during hibernation. DAVID A. VAUGHAN AND JOHN P. HANNON. *Arctic Aeromed. Lab.*

11:15 **666.** Effects of cold-acclimation on hamster cellular enzyme activity. R. R. J. CHAFFEE,* R. T. CLARK, J. LOWE* AND W. L. BARTLETT. *Brooks AFB, Univ. of Redlands and Univ. of California.*

Lipids

TUES. A.M.—MORRISON, HOLLYWOOD ROOM

Chairman: H. G. Necheles

9:00 **667.** 'Repair' of lipogenesis on refeeding: early hours. JAY TEPPERMAN, HELEN M. TEPPERMAN AND JANET DEWITT.* *State Univ. of New York.*

9:15 **668.** An analysis of the depressed hepatic lipogenesis induced by cold stress. E. J. MASORO. *Tufts Univ.*

9:30 **669.** Disappearance curves of i.v. administered I^{131} labeled triolein in humans. LEONARD J. FEINBERG, HERSCHEL SANDBERG, EDWARD R. DICKSTEIN AND SAMUEL BELLET (intr. by RAYMOND PENNEYS). *Philadelphia Gen. Hosp.*

9:45 **670.** Endocrine control of plasma lipids. EDWARD PALOYAN,* PAUL V. HARPER AND HANNAH B. WATKINS.* *Univ. of Chicago.*

10:00 **671.** Fate of administered tritiated carnitine in the dog. KENNETH T. N. YUE AND IRVING B. FRITZ (intr. by H. W. DAVENPORT). *Univ. of Michigan.*

10:15 **672.** Survey of effects of carnitine on fatty acid oxidation by tissue preparation. IRVING FRITZ AND ELI KAPLAN.* *Univ. of Michigan.*

10:30 **673.** Restitution of α-lipoproteins in dog plasma following injection of lipid-free protein moiety. A. SCANU AND W. L. HUGHES (intr. by L. A. LEWIS). *Cleveland Clinic and Brookhaven Natl. Labs.*

10:45 **674.** In vitro alterations of molecular composition of serum lipoproteins by non-ionic detergents. T. T. TSALTAS AND L. M. TOCANTINS. *Jefferson Med. Coll.*

11:00 **675.** Lipoprotein lipase of rat heart. G. L. FELDMAN (intr. by L. KRAINTZ). *Baylor Univ.*

Press Room

Private Dining Room #2, Third floor, Conrad Hilton

Tuesday Afternoon, April 12, 1:30 p.m.

SYMPOSIUM: Neurophysiology of Learning and Behavior

TUES. P.M.—MORRISON, TERRACE CASINO

Honorary Chairman (in absentia): C. Judson Herrick

Acting Chairman: Robert B. Livingston

1:30 **676.** Growth of neurophysiological concepts relating to learning and motivation. CLIFFORD T. MORGAN. *Cambridge, Md.*

2:00 **677.** Neurophysiological studies on learning and motivation. ROBERT GALAMBOS. *Walter Reed Army Inst. of Res.*

2:30 **678.** Some developments in brain lesion studies of learning. ROGER W. SPERRY. *California Inst. of Technol.*

3:00 **679.** Brain mechanisms and the learning process. W. R. ADEY. *UCLA.*

3:30 **680.** Nervous mechanisms of behavior (to be read for C. JUDSON HERRICK). *Univ. of Chicago.*

Coronary

TUES. P.M.—MORRISON, GRAND BALLROOM

Chairman: C. F. Schmidt

1:30 **681.** Coronary blood flow using radioactive iodine compared with nitrous oxide. IVAN FORTE,* A. JANE WILLIAMS,* J. E. SCHMITTHENNER,* H. NEAL,* H. WOSKE,* R. RICHARDS* AND J. H. HAFKENSCHIEL. *Lankenau Hosp.*

1:45 **682.** Influence of coronary artery pressure upon distensibility of the canine left ventricle. P. F. SALISBURY, C. E. CROSS* AND P. A. RIEBEN.* *St. Joseph Hosp., Burbank, Calif.*

2:00 **683.** Reactive hyperthermia flow characteristics of canine myocardium. JAY D. COFFMAN* AND DONALD E. GREGG. *Walter Reed Army Inst. of Res.*

2:15 **684.** Effect of nitroglycerine on coronary vascular resistance. D. M. GRIGGS, JR., R. N. PIERSON, JR. AND R. B. CASE (intr. by L. B. DOTTI). *St. Luke's Hosp., New York.*

2:30 **685.** Effect of ethyl alcohol infusion on coronary and splanchnic hemodynamics. PAUL W. WILLARD* AND STEVEN M. HORVATH. *Lankenau Hosp. and Jefferson Med. Coll.*

2:45 **686.** Effect of experimental aortic stenosis on coronary circulation. MARVIN R. BLUMENTHAL,* HSUEH-HWA WANG* AND S. C. WANG. *Columbia Univ.*

3:00 **687.** Effects of nicotine and cigarette smoke on the dog ballistocardiogram. ALDO N. CORBASCIO AND J. W. WEST (intr. by H. I. KOHN). *Univ. of Pennsylvania.*

3:15 **688.** Quantitative estimation of myocardial infarct size by electrolyte shifts and by SGO-transaminase. R. A. RUSSELL,* A. J. BOCAGE* AND A. S. HARRIS. *Louisiana State Univ.*

3:30 **689.** Effects of ischemia and hyaluronidase upon myocardial water, serum albumin, and erythrocyte content. JORGE MARTINS DE OLIVEIRA* AND MATTHEW N. LEVY. *St. Vincent Charity Hosp., Cleveland.*

3:45 **690.** Effects of ischemia and operative attempts at myocardial revascularization on the ventricular fibrillation threshold. C. M. PHIBBS,* R. A. VANTYN* AND L. D. MACLEAN. *Univ. of Minnesota.*

4:00 **691.** Effect of histamine-release agents on ventricular tachycardia following myocardial infarction. JESSIE E. HANO (intr. by RICHARD ASHMAN). *Louisiana State Univ.*

Brain Stem; Midbrain

TUES. P.M.—MORRISON, CONSTITUTION ROOM

Chairman: C. McC. Brooks

1:30 **692.** Modification of acoustically evoked cerebellar responses by subcortical structures. CHARLES K. LEVY AND PAUL CHERVIN (intr. by FRED ELMADJIAN). *Worcester Fndn.*

1:45 **693.** Modification of peripherally evoked cuneate responses by cerebellar stimulation. A. M. STOIBER AND C. D. BARNES (intr. by H. N. HARKINS). *Univ. of Washington.*

2:00 **694.** Cerebellar influences on steady potentials and seizure activity in the cerebrum. T. OZAKI* AND R. S. SNIDER. *Northwestern Univ.*

2:15 **695.** Analysis of paramedian lobule responses to cortical and brain-stem stimulation. E. M. HOUSEPIAN AND D. P. PURPURA (intr. by P. F. A. HOEFER). *Columbia Univ.*

2:30 **696.** Effect of lesions in medulla on oculomotor responses to tectal and cortical stimulation. JANE E. HYDE (intr. by D. B. LINDSLEY). *UCLA.*

2:45 **697.** Effects of brain-stem lesions on vertical gaze in monkeys. M. B. BENDER AND S. SHANZER.* *Mt. Sinai Hosp., New York.*

3:00 **698.** Habituation to direct stimulation of the reticular formation. STEPHEN E. GLICKMAN AND SAMUEL M. FELDMAN (intr. by A. A. WARD, JR.). *Univ. of Washington.*

3:15 **699.** Cortical recruiting response elicited by low-frequency stimulation of the mesencephalic reticular formation. T. E. LYNES (intr. by J. A. BAIN). *Emory Univ.* (Pharmacol.)

3:30 **700.** Click responses in mesencephalic reticular formation during natural sleep. PETER R. HUTTENLOCHER (intr. by S. S. KETY). *Natl. Insts. of Health.*

3:45 **701.** Electrocorticograms of cats with chronic lesions of the rostral mesencephalic tegmentum. DAVID H. HUBEL AND W. J. H. NAUTA.* *Walter Reed Army Inst. of Res.*

4:00 **702.** Influences from the carotid sinus upon cortical evoked potentials. W. P. KOELLA, C. K. LEVY,* J. R. SMYTHIES* AND J. S. CZICMAN. *Worcester Fndn.*

4:15 **703.** Cerebral loci involved in penile erection. PAUL D. MACLEAN AND DETLOV PLOOG (intr. by R. B. LIVINGSTON). *Natl. Insts. of Health.*

Pulmonary Blood Flow II

TUES. P.M.—MORRISON, MADISON ROOM

Chairman: G. C. Ring

1:30 **704.** Pulmonary embolism in sympathectomized dogs. S. A. KABINS AND J. FRIDMAN (intr. by R. PICK). *Michael Reese Hosp.*

1:45 **705.** Pulmonary vascular-bronchomotor reflex. S. RODBARD AND M. HARASAWA.* *Univ. of Buffalo.*

2:00 **706.** A physiologic explanation of abnormal arterial blood pressure responses to the Valsalva maneuver. ROSS C. KORY, JOHN O. CHAMBERLAIN* AND HOWARD L. CORRELL.* *Wood VA Hosp. and Marquette Univ.*

2:15 **707.** Effects of changes of systemic and pulmonary arterial and venous pressures on bronchial collateral flow. A. M. RUDOLPH, P. A. M. AULD* AND R. J. GOLINKO.* *Harvard Univ. and Children's Med. Ctr.*

2:30 **708.** Physiological alterations occurring during development of pulmonary hypertension. LOIS T. ELLISON, DAVID P. HALL, T. YEH, H. MOBARHAN, J. ROSSI AND ROBERT G. ELLISON (intr. by W. F. HAMILTON). *Med. Coll. of Georgia.*

2:45 **709.** Effect of unilateral pulmonary artery occlusion upon calculated pulmonary blood volume. D. S. DOCK,* L. B. MCGUIRE,* J. W. HYLAND,* F. W. HAYNES AND L. DEXTER. *Peter Bent Brigham Hosp. and Harvard Univ.*

3:00 **710.** Changes in compliance associated with changes in shunt flow in the lung. LEON E. FARHI AND TULIO VELASQUEZ (intr. by H. RAHN). *Univ. of Buffalo.*

3:15 **711.** Effects of serotonin on pulmonary blood volume and flow in the dog. CHARLES J. MCGAFF AND WILLIAM R. MILNOR (intr. by E. C. ANDRUS). *Johns Hopkins Univ.*

3:30 **712.** Pulmonary and cardiovascular effects of sarin in treated dogs. GLENN D. LUBASH, IRWIN GRIBETZ AND RUDOLPH P. JOHNSON (intr. by WILLIAM H. CHAMBERS). *Army Chemical Ctr., Md.*

3:45 **713.** Drowning treated with IPPB. J. S. REDDING,* G. C. VOIGT* AND P. SAFAR. *Baltimore City Hosps.*

Muscle I

TUES. P.M.—MORRISON, EMBASSY ROOM

Chairman: R. W. Ramsey

1:30 **714.** Local activation and structure of slow striated muscle fibers of the frog. LEE D. PEACHEY AND ANDREW F. HUXLEY (intr. by FRANK BRINK, JR.). *Rockefeller Inst.*

1:45 **715.** Rectification in muscle membrane. W. H. FREYGANG, JR. AND R. H. ADRIAN. *Natl. Insts. of Health.*

2:00 **716.** Oscillatory hyperpolarizing responses in lobster muscle fibers. J. P. REUBEN, R. WERMAN AND H. GRUNDFEST (intr. by M. J. FRUMIN). *Columbia Univ.*

2:15 **717.** Isotonic velocity transients in muscle and their relation to contractile mechanism. R. J. PODOLSKY (intr. by D. E. GOLDMAN). *Naval Med. Res. Inst.*

2:30 **718.** An analysis of alternating movements of the human arm. ROBERT W. RAMSEY, A. H. NORRIS,* N. W. LEVORA,* N. W. SHOCK, SIBYL STREET, JOHN BOWER,* M. R. MILLER,* ROSSER RUDOLPH* AND ALFRED SZUMSKI.* *Med. Coll. of Virginia, Natl. Insts. of Health and Baltimore City Hosps.*

2:45 **719.** Effect of thyroxine on contractile efficiency of rat diaphragm. ROBERT E. SMITH AND W. J. WHALEN.* *UCLA.*

3:00 **720.** Effects of thyroid hormone and L-epinephrine on kinetics of contraction and relaxation of dog skeletal muscle. JAMES P. ISAACS, PATRICIA F. OSGOOD AND WILLIAM R. BREWSTER, JR. *Johns Hopkins Univ., Univ. of Florida and Harvard Univ.*

3:15 **721.** Effect of ischemia upon kinetics of contraction and relaxation of dog skeletal muscle. WILLIAM R. BREWSTER, JR., JAMES P. ISAACS AND PATRICIA F. OSGOOD (intr. by L. R. DRAGSTEDT). *Univ. of Florida and Harvard Univ.*

3:30 **722.** Neuromuscular disorders as elicited by dietary chloride excess or deficiency. E. BAJUSZ* AND H. SELYE. *Univ. of Montreal.*

3:45 **723.** Metabolic buffering in acid-base imbalance. RICHARD B. TOBIN (intr. by WALLACE O. FENN). *Univ. of Rochester.*

Physiology Society Business Meeting

TUESDAY, 4:30 P.M.—MORRISON, CONSTITUTION ROOM

Federation Joint Session

TUESDAY, 8:00 P.M.—CONRAD HILTON, GRAND BALLROOM

Wednesday Morning, April 13, 9:00 a.m.

SESSION ON TEACHING: Are National Standards for Graduate Degrees in Physiology Desirable or Possible?

WED. A.M.—MORRISON, TERRACE CASINO

Chairman: R. E. Johnson

9:00 **724.** Introductory remarks. R. E. JOHNSON. *Univ. of Illinois.*
9:05 **725.** Patterns of graduate training: Medical schools. T. C. RUCH. *Univ. of Washington.*
9:25 **726.** Patterns of graduate training: Schools of Arts and Sciences. DANIEL HARRIS. *Univ. of Chicago.*
9:45 **727.** Patterns of graduate training: Curricula in the medical sciences. E. M. LANDIS. *Harvard Univ.*
10:05 **728.** Patterns of graduate training: Schools of Dentistry, Public Health, Veterinary Medicine, Agriculture, and other professional schools. R. E. JOHNSON. *Univ. of Illinois.*
10:25 Intermission
10:35 Pros and cons of national standards for graduate degrees in physiology. Audience and panel.
11:45 Topics suggested for study by the Society's Committee on Education. Panel.

Cardiac Output

WED. A.M.—MORRISON, GRAND BALLROOM

Chairman: S. J. Sarnoff

9:00 **729.** Certain basic considerations in analyzing mechanisms controlling cardiac output. S. J. SARNOFF. *Natl. Insts. of Health.*
9:30 **730.** Estimation of left ventricular volumes from thermodilution curves. CHARLES R. THORPE* AND FRED S. GRODINS. *Northwestern Univ.*
9:45 **731.** Effects of exercise on heart output in normal dogs. M. D. BAILIE,* SID ROBINSON AND J. L. NEWTON.* *Indiana Univ.*
10:00 **732.** Influence of sympathomimetic amines on cardiovascular response to exercise in the dog. MICHAEL J. ALLWOOD,* ERNST W. KECK* AND JOHN T. SHEPHERD. *Mayo Fndn.*
10:15 **733.** Effects of stellate ganglion stimulation on the performance of dog heart lung preparation. L. J. O'BRIEN (intr. by R. S. ALEXANDER). *Albany Med. Coll.*
10:30 **734.** Effect of increasing aortic pressure on the performance characteristics of the left ventricle. J. H. MITCHELL,* J. P. GILMORE, R. J. LINDEN* AND S. J. SARNOFF (intr. by R. DAGGS). *Natl. Insts. of Health.*
10:45 **735.** Acute compensation in cardiac output on opening A-V fistulae. ARTHUR C. GUYTON. *Univ. of Mississippi.*
11:00 **736.** Cardiac output in dogs with acute and chronic complete atrioventricular dissociation: Effect of heart rate, tilting and pentobarbital anesthesia. GEROLD L. SCHIEBLER, ARTHUR H. KITCHIN AND DAVID E. DONALD (intr. by HIRAM E. ESSEX). *Mayo Clinic.*
11:15 **737.** Determination of cardiac output following a meal in the unanesthetized dog. EDWARD J. REININGER AND STEPHEN NUTIK (intr. by B. D. BURNS). *McGill Univ.*
11:30 **738.** Variability of cardiac output and respiration of dogs during pentobarbital anesthesia. ALLAN HEMINGWAY. *Univ. of California.*
11:45 **739.** Decline in cardiac output in dogs following chloralose and urethane anesthesia. H. PAGE MAUCK, JR., JACK FREUND AND RENO R. PORTER (intr. by LESLIE E. EDWARDS). *Med. Coll. of Virginia.*

Sensory I

WED. A.M.—MORRISON, CONSTITUTION ROOM

Chairman: Hallowell Davis

9:00 **740.** Electrophysiology of the sense organs. H. DAVIS. *Central Inst. for the Deaf.*
9:30 **741.** Cochlear responses to condensation and rarefaction clicks. W. T. PEAKE AND N. Y. S. KIANG (intr. by M. EDEN). *Massachusetts Inst. of Technol. and Eaton-Peabody Lab.*
9:45 **742.** Higher auditory centers and the DL for sound intensities. R. E. OESTERREICH* AND W. D. NEFF. *Univ. of Chicago.*
10:00 **743.** Descending connections of auditory cortex and thalamus of the cat. JOST B. WALTHER AND GRANT L. RASMUSSEN (intr. by W. F. WINDLE). *Natl. Insts. of Health.*
10:15 **744.** Spatial determinants of visual excitability. I. H. WAGMAN AND W. S. BATTERSBY. *Mt. Sinai Hosp., New York.*
10:30 **745.** Early and late responses at cortex to local electrical stimulation of cat retina. FRANCES R. GRIMM* AND R. W. DOTY. *Univ. of Michigan.*
10:45 **746.** Spontaneous and evoked activity of single units in visual cortex of cat during sleep and waking. EDWARD V. EVARTS. *Natl. Insts. of Health.*
11:00 **747.** Cerebral electrical correlates of optokinetic stimulation. STEFAN SHANZER,* IRVING H. WAGMAN, MORRIS B. BENDER AND HOWARD P. KRIEGER. *Mt. Sinai Hosp., New York.*
11:15 **748.** Permanent fractionation of the electroretinogram in glutamate-treated mice. ALBERT M. POTTS AND ROBERT W. MODRELL.* *Univ. of Chicago and Western Reserve Univ.* (Biochem.)
11:30 **749.** Rat taste cell proliferation. L. M. BEIDLER, M. S. NEJAD,* R. L. SMALLMAN* AND H. TATEDA.* *Florida State Univ.*

11:45 **750.** Localization of separate cortical areas for taste and tactile tongue afferents in squirrel monkey. ROBERT M. BENJAMIN AND RAIMOND EMMERS.* *Univ. of Wisconsin.*

12:00 **751.** Differential localization of taste and tongue tactile afferents in the rat thalamus. RAIMOND EMMERS, ROBERT M. BENJAMIN AND MURRAY F. ABLES (intr. by W. I. WELKER). *Univ. of Wisconsin.*

Respiration Mechanics II

WED. A.M.—MORRISON, MADISON ROOM

Chairman: T. G. Bernthal

9:00 **752.** Respiratory consequences of passive body movement. P. B. STEWART,* M. E. DIXON,* D. V. BATES AND R. V. CHRISTIE. *Royal Victoria Hosp. and Montreal Children's Hosp.*

9:15 **753.** Breathing in brief exercise. F. N. CRAIG AND E. G. CUMMINGS.* *U.S. Army Chem. Warfare Labs.*

9:30 **754.** Mechanics of respiration during forward acceleration. J. F. WATSON, N. S. CHERNIACK AND F. W. ZECHMAN, JR. (intr. by E. P. HIATT). *Wright-Patterson AFB.*

9:45 **755.** Ventilatory response to forward acceleration. FRED ZECHMAN, JR., NEIL S. CHERNIACK AND ALVIN S. HYDE (intr. by W. C. MCNELLY). *Wright-Patterson AFB.*

10:00 **756.** Effect of respiratory tract obstruction upon the ventilatory response to inhaled CO_2. PHILIP SAMET, EUGENE FIERER* AND WILLIAM BERNSTEIN.* *Mt. Sinai Hosp. and Univ. of Miami.*

10:15 **757.** Alveolo urinary N_2 partial pressure difference compared to other measures of the distribution of ventilation and perfusion within the lung. W. A. BRISCOE AND H. P. GURTNER.* *Columbia Univ.*

10:30 **758.** Joint motion and minute ventilation in normal and emphysematous subjects. HERMAN F. FROEB (intr. by A. BAIRD HASTINGS). *Scripps Clinic and Res. Fndn.*

10:45 **759.** Pulmonary ventilation in oxygen deficit of newborn. E. F. ADOLPH AND P. A. HOY.* *Univ. of Rochester.*

11:00 **760.** Rapid shift of ventilation from unperfused regions of lung. J. W. SEVERINGHAUS, E. W. SWENSON,* T. N. FINLEY* AND M. T. LATEGOLA.* *Univ. of California.*

11:15 **761.** Threshold tachypneic diffuse pulmonary embolism and pulmonary vascular obstruction. THEODORE BERNTHAL, ALAN D. HORRES* AND J. T. TAYLOR, III.* *Med. Coll. of South Carolina.*

Peripheral Blood Flow I

WED. A.M.—MORRISON, EMBASSY ROOM

Chairman: R. W. Stacy

9:00 **762.** Aortic pressure-length-diameter relationship. DALI J. PATEL, ALEXANDER J. MALLOS AND DONALD L. FRY. *Natl. Insts. of Health.*

9:15 **763.** Blood flow distribution in intact dogs by ultrasonic flowmeters. DEAN FRANKLIN, DON BAKER, ROBERT VAN CITTERS AND ROBERT F. RUSHMER (intr. by J. W. STUTZMAN). *Univ. of Washington.*

9:30 **764.** Evaluation of venous occlusion plethysmography. MARGARET C. CONRAD,* ADAM B. DENISON, JR. AND HAROLD D. GREEN. *Bowman-Gray Sch. of Med.*

9:45 **765.** Effect of partial venous occlusion and release on muscle oxygen uptake and blood flow. J. T. FALES, S. R. HEISEY AND K. L. ZIERLER (intr. by JANET HOWELL CLARK). *Johns Hopkins Univ.*

10:00 **766.** An explanation of the major features of the arterial pulse by means of a simple electronic analogy. M. P. SPENCER AND A. B. DENISON. *Bowman-Gray Sch. of Med.*

10:15 **767.** Longitudinal and radial strain in pulse wave transmission. ROBERT L. VAN CITTERS AND ROBERT F. RUSHMER (intr. by EDWARD A. BOYDEN). *Univ. of Washington.*

10:30 **768.** On the presence of a permeability and chemotactic factor in blood serum. VALY MENKIN. *Univ. of Pennsylvania.*

10:45 **769.** Evidence of a blood-borne vasodilator released from an ischemic extremity. CHESTER HYMAN AND BERNARD R. FREEBURG.* *Univ. of Southern California.*

11:00 **770.** Distribution of blood flow to the human extremity in response to physiologic and pharmacologic stimuli. W. REDISCH, I. BESSEGHINI AND J. M. STEELE. *Goldwater Mem. Hosp. and New York Univ.*

11:15 **771.** Control of peripheral vascular beds during exercise. J. P. REMENSNYDER,* J. H. MITCHELL AND S. J. SARNOFF. *Natl. Insts. of Health.*

11:30 **772.** Polarographic evaluation of effects of vascular, trauma and drugs on muscle oxygen tension. S. I. SCHWARTZ, P. D. HARRIS AND E. B. MAHONEY (intr. by W. T. POMMERENKE). *Univ. of Rochester.*

Cold Exposure; Shivering

WED. A.M.—MORRISON, VENETIAN ROOM

Chairman: J. M. Crismon

9:00 **773.** Continuous measurement of metabolic rate in human subjects exposed to cold 10°C. R. H. THOMPSON,* E. R. BUSKIRK, R. MOORE* AND G. D. WHEDON. *Natl. Insts. of Health.*

9:15 **774.** Relationship of changing levels of physical fitness to human cold acclimatization. E. J. HEBERLING AND T. ADAMS (intr. by L. D. CARLSON). *Univ. of Washington.*

9:30 **775.** Cooling isochrones. GEORGE W. MOLNAR. *U.S. Army Med. Res. Lab.*

9:45 **776.** Cold exposure duration and age effects on selected liver enzymes. JOHN P. HANNON AND DAVID A. VAUGHAN. *Arctic Aeromed. Lab.*

10:00 **777.** Acetate activating enzyme activity in livers of cold-fasted rats. H. M. KORCHAK AND E. J. MASORO (intr. by J. M. HAYMAN, JR.). *Tufts Univ.*

10:15 **778.** Effect of 2,4-dichlorophenoxyacetic acid on thermoregulation in rats. FREDERICK N. SUDAK AND C. LLOYD CLAFF (intr. by H. L. BARNETT). *Albert Einstein Coll. of Med.*

10:30 **779.** Diet and body temperature in the cold. M. B. KREIDER,* E. R. BUSKIRK AND P. F. IAMPIETRO. *Army QM R&E Ctr.*

10:45 **780.** Behavior in the cold after acclimatization. VICTOR G. LATIES AND BERNARD WEISS (intr. by E. K. MARSHALL, JR). *Johns Hopkins Univ.*

11:00 **781.** Respiratory effort and shivering. R. W. BULLARD (intr. by C. A. BUNDE). *Indiana Univ.*

11:15 **782.** Cessation of shivering following forebrain lesions in anesthetized cats. F. H. JACOBSON, P. H. CRAIG* AND R. D. SQUIRES. *Naval Air Develop. Ctr.*

Parathyroid; Calcium; Bone

WED. A.M.—MORRISON, HOLLYWOOD ROOM

Chairman: W. O. Fenn

9:00 **783.** Parathormone-like activity in sera of rats with induced hyperparathyroidism. B. BUCKNER AND J. E. NELLOR (intr. by J. A. HOEFER). *Michigan State Univ.* (Nutr.)

9:15 **784.** Metabolic studies on aluminum gel phosphorus depletion. S. H. LAU,* A. G. GOLDMAN* AND J. GROSSMAN. *Montefiore Hosp., New York.*

9:30 **785.** Effect of parathyroid hormone (PTH) on citrate production. J. C. SCHOOLEY AND E. OTERO (intr. by H. B. JONES). *Univ. of California.*

9:45 **786.** Parathyroid activity after nephrectomy as indicated by changes in osteoclast activity in femur. R. J. TOFT* AND ROY V. TALMAGE. *Rice Inst.*

10:00 **787.** Effect of pH on ultrafiltrable calcium from rabbit serum. NEAL A. PETERSON* AND J. M. CRISMON. *Stanford Univ.*

10:15 **788.** Ion association. I. Effect of univalent and multivalent anions on concentration of free calcium ions in serum ultrafiltrate. MACKENZIE WALSER. *Johns Hopkins Univ.*

10:30 **789.** Gastroliths of crayfish as convenient sites for study of mechanisms of matrix and mineral deposition in calcified structures. DOROTHY F. TRAVIS (intr. by J. H. WELSH). *Harvard Univ.*

10:45 **790.** A basis for collagen-apatite interaction. H. ELDEN* AND D. S. HOWELL. *Howard Hughes Med. Inst. and Univ. of Miami.*

11:00 **791.** Differences between accretion and resorption in bone cell metabolism. GEORGE NICHOLS, JR., NANCY NICHOLS* AND ANDRE B. BORLE.* *Harvard Univ.*

11:15 **792.** Differential effects of immobilization in calcium and strontium metabolism. FELIX BRONNER AND PAUL D. SAVILLE.* *Cornell Med. Ctr.*

11:30 **793.** Enhancement of radiostrontium excretion in man. HERTA SPENCER, ARTHUR FELDSTEIN AND JOSEPH SAMACHSON (intr. by EUGENE Y. BERGER). *Montefiore Hosp., New York.*

Renal Tubule

WED. A.M.—PALMER HOUSE, WABASH ROOM

Chairman: N. A. Brodsky

9:00 **794.** Composition of loop of Henle and collecting duct fluids in the hamster papilla. WILLIAM E. LASSITER,* CARL W. GOTTSCHALK AND MARGARET MYLLE.* *Univ. of North Carolina.*

9:15 **795.** Functional discrimination between the straight and convoluted segments of renal proximal tubule. J. B. LONGLEY, M. B. BURG AND H. J. BURTNER (intr. by S. S. SPICER). *Natl. Insts. of Health.*

9:30 **796.** Respiratory quotient (RQ) of dog kidney in vivo. JULIUS J. COHEN. *Univ. of Rochester.*

9:45 **797.** Accumulation of uric acid by rabbit kidney slices in vitro. M. M. PLATTA* AND G. H. MUDGE (intr. by PHILIP BARD). *Johns Hopkins Univ.*

10:00 **798.** Effect of secretion-reabsorption on titration curves of tubular transport. G. H. MUDGE, I. M. WEINER, K. GARLID* AND J. ROMEO.* *Johns Hopkins Univ.*

10:15 **799.** Renal tubular secretion-reabsportion of organic acids. I. M. WEINER, JOHN A. WASHINGTON, II* AND GILBERT H. MUDGE. *Johns Hopkins Univ.* (Pharmacol.)

10:30 **800.** Run-out of luminal Diodrast-I^{131} from isolated renal tubules of goldfish. WILLIAM B. KINTER AND ALLEN L. CLINE.* *Harvard Univ.*

10:45 **801.** Effects of chelating agents on active transport of PAH by renal cortical slices. C. LARKIN FLANAGAN* AND DAVID P. EARLE, JR. *Northwestern Univ.*

11:00 **802.** Retrograde movement of some nonelectrolytes across the renal tubular epithelium. J. C. PENA* AND R. L. MALVIN. *Univ. of Michigan.*

11:15 **803.** Renal excretion of L-tyrosine derivatives. K. C. HUANG. *Univ. of Louisville.*

11:30 **804.** Glutamine and Krebs' cycle in regulation of renal ammonia production. WILLIAM D. LOTSPEICH. *Univ. of Rochester.*

Wednesday Afternoon, April 13, 1:30 p.m.

Indicator-Dilution Techniques

WED. P.M.—MORRISON, GRAND BALLROOM

Chairman: E. H. Wood

1:30 **805.** Some past, present and future aspects of indicator-dilution techniques. E. H. WOOD. *Mayo Fndn.*

2:00 **806.** Calibration of multiple dye-dilution curves in a single subject. ANTHONY W. T. EDWARDS,* WILLIAM F. SUTTERER* AND EARL H. WOOD. *Mayo Clinic and Fndn.*

2:15 **807.** Mixing of indicator with blood in the left ventricle. CLORINDA SCARPA-SMITH (intr. by PHILIP DOW). *Med. College of Georgia.*

2:30 **808.** Indicator concentration curves in dogs forepaw. GEORGE LIN,* CARLOS RAPELA,* ADAM B. DENISON, JR. AND HAROLD D. GREEN. *Bowman-Gray Sch. of Med.*

2:45 **809.** Simultaneous measurement of cardiac output in dogs by use of an electromagnetic flow meter and a tricarbocyanine dye. W. H. HARDESTY, G. K. DANIELSON AND W. S. BLAKEMORE (intr. by J. E. RHOADS). *Univ. of Pennsylvania.*

3:00 **810.** Dye-dilution curves from pulmonary-artery and aortic-sampling sites compared with the same curves sampled at the femoral artery. JAMES B. BASSINGTHWAITE AND ANTHONY W. T. EDWARDS (intr. by HOWARD B. BURCHELL). *Mayo Clinic and Fndn.*

3:15 **811.** Significance of changes in 'central' blood volume in man during exercise. ROBERT J. MARSHALL (intr. by H. J. C. SWAN). *Mayo Clinic and Fndn.*

3:30 **812.** Comparison of 'slope' and 'mean transit time' central volumes. L. B. MCGUIRE,* D. S. DOCK,* J. W. HYLAND,* F. W. HAYNES AND L. DEXTER. *Peter Bent Brigham Hosp. and Harvard Univ.*

3:45 **813.** Pulmonary circulatory dynamics in patients with mitral valvular disease during methoxamine infusion. PAUL N. YU, C. A. STANFIELD, JAMES K. FINLAYSON AND MILTON N. LURIA (intr. by J. N. STANNARD). *Univ. of Rochester.*

Gastrointestinal Motility

WED. P.M.—MORRISON, TERRACE CASINO

Chairman: C. F. Code

1:30 **814.** Propulsion in the alimentary canal. C. F. CODE. *Mayo Fndn.*

2:00 **815.** Esophageal pressure waves while swallowing liquids in the vertical and horizontal position. A. R. VELA* AND J. P. QUIGLEY. *Univ. of Tennessee.*

2:15 **816.** Correlation of motility of distal pyloric antrum, pyloric sphincter and proximal duodenum. JOE MOON,* H. LOUCKES AND J. P. QUIGLEY. *Univ. of Tennessee.*

2:30 **817.** Effect of insulin hypoglycemia on gastric motility of spider monkeys. F. P. BROOKS AND S. S. ROTHMAN.* *Univ. of Pennsylvania.*

2:45 **818.** Effect of intraduodenal installation of olive oil and hydrochloric acid on motor activity of the fully innervated part of the stomach and Heidenhain pouch of dogs. STANLEY H. LORBER AND HARRY SHAY. *Fels Res. Inst.*

3:00 **819.** Pressure profile of the gastroduodenal junctional zone in dogs. BENNO M. BRINK* AND CHARLES F. CODE. *Mayo Fndn.*

3:15 **820.** Effect of morphine on electric and motor activity of the duodenum. PAUL BASS,* CHARLES F. CODE AND EDWARD H. LAMBERT. *Mayo Fndn.*

3:30 **821.** Serotonin content of intestinal wall and lumen of the rabbit small intestine. T. HAYAMA (intr. by C. A. FINCH). *Univ. of Washington.*

3:45 **822.** Effect of halothane on gastrointestinal motility. F. N. MARSHALL,* C. B. PITTINGER AND J. P. LONG. *State Univ. of Iowa.* (Pharmacol.)

Learning; Behavior; Motivation

WED. P.M.—MORRISON, CONSTITUTION ROOM

Chairman: A. W. Hetherington

1:30 **823.** Cardiac and motor conditional reflex to food in penguin. W. HORSLEY GANTT, W. S. SLADEN* AND MARIA SIMONSON. *Johns Hopkins Univ.*

1:45 **824.** Behavioral effects of random temperature cycles in lizards. J. LANGDON TAYLOR, JR.* AND ROBERT D. TSCHIRGI. *Univ. of California.*

2:00 **825.** Indications of instrumental learning, 'exploratory' behavior and 'boredom' in planaria. J. B. BEST AND I. RUBINSTEIN (intr. by JOHN Z. HEARON). *Walter Reed Army Inst. of Res.*

2:15 **826.** Physical activity and human obesity. ANNA M. CHIRICO AND ALBERT J. STUNKARD (intr. by F. C. DOHAN). *Univ. of Pennsylvania.*

2:30 **827.** Some factors modifying the expression of human strength. ARTHUR H. STEINHAUS AND MICHIO IKAI.* *George Williams Coll. and Univ. of Tokyo.*

2:45 **828.** Aggressive behavior produced by electrical stimulation of the ventromedial nucleus of the hypothalamus in the cat. MURRAY GLUSMAN AND LEON ROIZIN (intr. by A. WEIL). *New York State Psychiat. Inst. and Columbia Univ.* (Pathol.)

3:00 **829.** Effect of psycholological stress on heart rhythm. R. B. PEARSON, JANESTA JANZEN AND RICHARD STURDEVANT (intr. by VERNON C. BOHR). *Coll. of Med. Evangelists.*

O_2 and CO_2 Transport I

WED. P.M.—MORRISON, MADISON ROOM

Chairman: A. B. DuBois

1:30 **830.** Oxygen dissociation curves of the bloods of pregnant sheep, fetal and newborn lambs at various pH's. G. MESCHIA,* A. HELLEGERS,* J. BLECHNER,* S. WOLKOFF* AND D. H. BARRON. *Yale Univ.*

1:45 **831.** Relationship of fetal plasma P_{CO_2}, pH and bicarbonate to the maternal. JACK N. BLECHNER, GIACOMO MESCHIA AND DONALD H. BARRON (intr. by DAVENPORT HOOKER). *Yale Univ.*

2:00 **832.** P_{O_2} and P_{CO_2} of lymph. E. H. BERGOFSKY,* J. H. JACOBSON, II* AND A. P. FISHMAN. *Columbia Univ.*

2:15 **833.** Partition of CO and O_2 between alveolar gas and the hemoglobin of arterial blood. W. S. BLAKEMORE, G. K. DANIELSON* AND R. E. FORSTER. *Univ. of Pennsylvania.*

2:30 **834.** An electrode for measurement of true oxygen partial pressure in biological environments. ALBERT F. KELSO (intr. by PRICE E. THOMAS). *Chicago Coll. of Osteopathy.*

2:45 **835.** Oxygen use by dog skeletal muscle during progressive hypoxia. WENDELL N. STAINSBY, STEPHEN M. CAIN* AND ARTHUR B. OTIS. *Univ. of Florida.*

3:00 **836.** Oxygen diffusing capacity of tissue. A. B. OTIS. *Univ. of Florida.*

3:15 **837.** Gaseous exchange following acute experimental embolism in dogs. M. STEIN, C. E. FORKNER, JR., E. D. ROBIN AND S. WESSLER (intr. by A. S. FREEDBERG). *Beth Israel and Peter Bent Brigham Hosps. and Harvard Univ.*

3:30 **838.** Intracellular oxygen tension estimated from the glow of fireflies. ARTHUR B. DUBOIS AND GEORGE POLGAR.* *Univ. of Pennsylvania.*

Peripheral Blood Flow II

WED. P.M.—MORRISON, EMBASSY ROOM

Chairman: E. M. Landis

1:30 **839.** Induced changes in capacitance of the turtle venous system. ARTHUR H. L. FROM (intr. by H. ROSTORFER). *Indiana Univ.*

1:45 **840.** Secondary vasodilation vs. epinephrine reversal in skeletal muscle vascular beds. CARLOS RAPELA,* J. R. R. BOBB AND HAROLD D. GREEN. *Bowman-Gray School of Med.*

2:00 **841.** Mechanism of edema production by acetylcholine, serotonin, histamine and norepinephrine. F. J. HADDY. *VA Res. Hosp. and Northwestern Univ.*

2:15 **842.** Vascular responses to electrical stimulation of the sympathetic trunk in the dog. R. O. RAWSON AND W. C. RANDALL. *Loyola Univ.*

2:30 **843.** Blood flow changes in extremities of dogs following sympathectomy and exercise. H. E. EDERSTROM AND D. A. PORTER.* *Univ. of North Dakota.*

2:45 **844.** Some effects of splenectomy on mesenteric blood vessels and the susceptibility to hypotension and shock in young albino rats. LEIF HORN (intr. by M. ROCKSTEIN). *New York Univ.*

3:00 **845.** Differential alterations in mesenteric arterial and venous resistance in hemorrhage shock. J. J. FRIEDMAN. *Indiana Univ.*

3:15 **846.** Blood flow and oxygen uptake responses to short periods of arterial occlusion. D. I. ABRAMSON, S. TUCK, JR.* AND Y. BELL.* *Univ. of Illinois.*

3:30 **847.** Cardiovascular changes during continuous positive

pressure breathing. R. H. HARNER,* S. F. MAROTTA* AND J. P. MARBARGER. *Univ. of Illinois.*

3:45 **848.** Pressure volume relationships of small arterial segments. P. C. JOHNSON, W. L. KNOCHEL* AND T. L. SHERMAN.* *Indiana Univ.*

4:00 **849.** Reactive hyperemia in the severely cooled finger. C. J. EAGAN (intr. by HOMER WHEELON). *Def. Res. Med. Labs., Toronto, Canada.*

Muscle II

WED. P.M.—MORRISON, VENETIAN ROOM

Chairman: A. Sandow

1:30 **850.** High K and low Na mobility in cells: its interpretation in terms of fixed charge-induction hypothesis. G. LING. *Eastern Pennsylvania Psychiat. Inst.*

1:45 **851.** Stable states and oscillation of skeletal muscle. G. FALK AND J. F. LANDA. *Univ. of Washington.*

2:00 **852.** TEA as a substitute for Ca^{++} in lobster muscle fibers. R. WERMAN AND H. GRUNDFEST (intr. by F. A. METTLER). *Columbia Univ.*

2:15 **853.** Electrolytes in dog carotid in vitro following electrical and epinephrine stimulation. V. E. HEADINGS,* DAVID F. BOHR AND P. A. RONDELL. *Univ. of Michigan.*

2:30 **854.** Evidence for increased sodium permeability during activity in mammalian smooth muscle. C. Y. KAO, F. BRONNER AND D. ZAKIM.* *State Univ. of New York.*

2:45 **855.** Recovery of carotid artery strips from cold storage. LLOYD BARR, DAVID F. BOHR AND VERLE HEADINGS (intr. by C. R. BRASSFIELD). *Univ. of Michigan.*

3:00 **856.** Activity of the parturient rat uterus, as measured by the 'sucrose gap' method. J. M. MARSHALL. *Johns Hopkins Med. Sch.*

3:15 **857.** Bioelectric activity restored by cholinesterase reactivators. L. P. HINTERBUCHNER (intr. by D. SHEMIN). *Columbia Univ.* (Biochem.)

3:30 **858.** Effect of gallamine (Flaxedil) and acetylcholine on motility in aneural smooth muscle. JOHN FERGUSON. *Creighton Univ.*

3:45 **859.** Blocking action of thiamine on neuromuscular transmission and membrane conduction. W. L. NASTUK AND N. KAHN.* *Columbia Univ.*

4:00 **860.** Electrical activity in fibrillar-type muscle fibers. FRANCES V. MCCANN (intr. by R. E. GOSSELIN). *Dartmouth Coll.*

Electrolytes I

WED. P.M.—PALMER HOUSE, WABASH ROOM

Chairman: K. G. Wakim

1:30 **861.** Secretion of potassium in golden hamsters. KLAUS HIERHOLZER (intr. by R. C. SWANN). *Cornell Univ.*

1:45 **862.** Electrical potential measurements on single nephrons of the perfused necturus kidney. GERHARD GIEBISCH. *Cornell Univ.*

2:00 **863.** Effect of ammonium salts on electrolyte excretion in the chicken. LUIS BRENES,* MELVIN KAHN,* DOUGLAS DAVIDSON* AND JACK ORLOFF. *Natl. Insts. of Health.*

2:15 **864.** Effect of strophanthidin on transport mechanisms of renal tubule. J. R. CADE, R. J. SHALHOUB AND M. L. CANESSA (intr. by R. F. PITTS). *Cornell Univ.*

2:30 **865.** Functional distribution of solutes in the renal tissue of rodents. B. SCHMIDT-NIELSEN AND R. O'DELL.* *Duke Univ.*

2:45 **866.** Micropuncture study of renal tubular acidification in the rat. ERICH E. WINDHAGER AND GERHARD GIEBISCH (intr. by JOHN MACLEOD). *Cornell Univ.*

3:00 **867.** Renal excretion of inorganic sulfate in the chicken. D. L. GLOBUS,* E. L. BECKER AND D. D. THOMPSON. *Cornell Univ.*

3:15 **868.** Factors affecting direction of urine-plasma gradients of pCO_2 during production of acidic urine. JOHN T. KAIM* AND WILLIAM A. BRODSKY. *Univ. of Louisville.*

Future Annual Meetings

Dates of Federation Annual Meetings for the next three years are: 1961: April 10–14; 1962: April 16–20; 1963: April 15–19.

Thursday Morning, April 14, 9:00 a.m.

Cardiac Muscle

THURS. A.M.—MORRISON, GRAND BALLROOM

Chairman: M. B. Visscher

9:00 **869.** Oxygen uptake of Purkinje fibers of the dog heart. KALMAN GREENSPAN* AND PAUL F. CRANEFIELD. *State Univ. of New York.*

9:15 **870.** Relation of work and oxygen consumption in isolated cat myocardium. WILLIAM J. WHALEN (intr. by V. E. HALL). *UCLA.*

9:30 **871.** Effect of hyperthyroidism on oxidative phosphorylation in mitochondria from the heart and liver. D. A. PIATNEK AND C. W. LEE (intr. by H. S. BELDING). *Univ. of Pittsburgh.*

9:45 **872.** Effects of hypophysectomy on myocardial function and composition. W. V. WHITEHORN, T. M. KING* AND B. REEVES.* *Univ. of Illinois.*

10:00 **873.** Effects of stretch on tension development in the isolated frog heart. ARTHUR J. KAHN (intr. by ERNESTO SALGADO). *Seton Hall Coll. of Med.*

10:15 **874.** Arrhythmia as a determinant of ventricular contractile force. B. LENDRUM,* H. FEINBERG AND L. N. KATZ. *Michael Reese Hosp. and Cook Co. Children's Hosp.*

10:30 **875.** Water and electrolyte studies on canine homotransplanted hearts. PETER V. MOULDER* AND LILLIAN EICHELBERGER. *Univ. of Chicago.* (Biochem.)

10:45 **876.** Role of hypothermia in the protection of myocardial metabolism during cardiopulmonary by-pass and elective cardiac arrest. R. G. ELLISON,* S. A. SINGAL, W. H. MORETZ,* E. L. BRACKNEY,* W. F. BUTLER,* W. C. MALOY* AND D. P. HALL.* *Med. Coll. of Georgia.* (Biochem.)

11:00 **877.** Production of ammonia in perfused hypothermic rabbit hearts. H. FEINBERG AND SISTER MARY ALMA.* *Michael Reese Hosp. and Notre Dame Coll. of Maryland.*

11:15 **878.** Myocardial nucleotides and creatine phosphate in anoxic cardiac arrest. ELLIS S. BENSON,* GERALD T. EVANS, BEN E. HALLAWAY* AND CLIFFORD PHIBBS.* *Univ. of Minnesota.*

11:30 **879.** Labeled phosphate distribution in dog myocardium. N. J. ZEIG,* K. K. TSUBOI* AND N. M. BUCKLEY. *Albert Einstein Coll. of Med. and Cornell Univ.*

Sensory II

THURS. A.M.—MORRISON, CONSTITUTION ROOM

Chairman: Donald Scott, Jr.

9:00 **880.** A microelectrode study of cerebellar forelimb afferents. ROBERT G. GROSSMAN, GEORGE MOUSHEGIAN, LAWRENCE J. VIERNSTEIN AND ALLEN RUPERT (intr. by ROBERT GALAMBOS). *Walter Reed Inst. of Res. and Johns Hopkins Applied Physics Lab.*

9:15 **881.** Effect of sensorimotor cortex and mesencephalic reticular formation on unit activity and evoked potential in the dorsal column nuclei. ROBERT SIMINOFF (intr. by C. D. CLEMENTE). *Univ. of California.*

9:30 **882.** Peripheral sensory fields of pyramidal tract (P.T.) cells. VERNON B. BROOKS. *Rockefeller Inst.*

9:45 **883.** Neuronal activity in thalamic nuclei with multiple microelectrodes. K. NEGISHI (intr. by M. VERZEANO). *Univ. of California.*

10:00 **884.** Analysis of corticofugal influences on cuneate transmission. HARDRESS J. WALLER (intr. by V. E. AMASSIAN). *Albert Einstein Coll. of Med.*

10:15 **885.** Alternation of the primary cortical response evoked by peripheral nerve stimulation. JAMES FROST,* PETER KELLAWAY AND MEYER PROLER* (intr. by H. E. HOFF). *Baylor Univ.*

10:30 **886.** Physiologic responses of the human sensory thalamus. FRANK R. ERVIN AND VERNON H. MARK (intr. by E. L. GASTEIGER). *Mass. Gen. Hosp. and Harvard Med. School.*

10:45 **887.** Thoracic stretch-receptors in the crayfish. R. L. C. PILGRIM* AND C. A. G. WIERSMA. *California Inst. of Technol.*

11:00 **888.** Diameter and receptor function of myelinated cutaneous afferent fibers. C. C. HUNT AND A. K. MCINTYRE.* *Univ. of Utah.*

11:15 **889.** Effect of peripheral nerve stimulation and muscle activation on respiration and blood pressure nociceptive reflex pattern. J. H. PERRYMAN, S. KATZ* AND L. J. GOLDBERG.* *New York Univ.*

11:30 **890.** Relation of nasal membrane function to olfactory acuity. ROBERT A. SCHNEIDER (intr. by A. N. TAYLOR). *Univ. of Oklahoma Hosps. and Okla. Med. Res. Fndn.*

11:45 **891.** Maxwell's spot, Haidinger's brushes and macular pigment. W. A. H. RUSHTON (intr. by M. FUORTES). *Natl. Insts. of Health.*

12:00 **892.** Partial purification and properties of the luminescent system of the fish, *Apogon ellioti.* E. H.-C. SIE,* F. H. JOHNSON AND Y. HANEDA.* *Princeton Univ. and Yokosuka City Museum, Japan.*

O_2-CO_2 Transport II

THURS. A.M.—MORRISON, MADISON ROOM

Chairman: W. S. Fowler

9:00 **893.** Analogue computer analysis of CO_2 concentration curves. F. E. NOE, J. YOSHITAKE AND F. E. GREIFENSTEIN (intr. by F. A. MORIN). *Wayne State Univ.*

9:15 **894.** In vivo inhibition of erythrocytic carbonic anhydrase in man. G. G. BURTON,* C. R. COLLIER, J. D. HACKNEY* AND CARL BAUER.* *Coll. of Med. Evangelists.*

9:30 **895.** An evaluation of the respiratory response to breathing 7.5% CO_2 in air as a test of respiratory center depression. GEORGE N. BEDELL AND ROBERT S. ROSENBERG (intr. by RALPH G. JANES). *State Univ. of Iowa.*

9:45 **896.** Respiratory adaptation to chronic CO_2 exposure. K. E. SCHAEFER, G. NICHOLS* AND C. R. CAREY.* *Naval Med. Res. Inst. and Harvard Univ.*

10:00 **897.** Ventilatory responses to carbon dioxide stress in hypothermic dogs. J. SALZANO AND F. G. HALL. *Duke Univ.*

10:15 **898.** Carbon dioxide balance studies in normal and acidotic dogs treated with organic buffer (THAM). FELICE MANFREDI,* RICHARD M. PORTWOOD AND HERBERT O. SIEKER (intr. by E. A. STEAD, JR.). *Duke Univ.*

10:30 **899.** Effect of an organic buffer (THAM) on respiration, arterial blood pH and respiratory gases in

decerebrate, pontile and medullary cats. R. L. KATZ,* S. H. NGAI, G. G. NAHAS AND S. C. WANG. *Columbia Univ.*

10:45 **900.** Effect of acidosis on cerebrospinal fluid (CSF) and its correction by THAM. SERGE J. DOS* AND GABRIEL NAHAS (intr. by WILLIAM M. MANGER). *Columbia Univ.*

RBC; Platelets

THURS. A.M.—MORRISON, EMBASSY ROOM

Chairman: W. H. Seegers

9:00 **901.** Simplified kinetic description of RBC system. J. E. ROBERTS* AND T. H. ALLEN. *Univ. of Colorado and USA Med. Res. & Nutr. Lab., Fitzsimons Army Hosp.*

9:15 **902.** Rat assay of erythropoietic factor in milk of 'altitude' goats. J. CLIFFORD STICKNEY, THEADORE L. BROWNE* AND EDWARD J. VAN LIERE. *West Virginia Univ. Med. Ctr.*

9:30 **903.** A possible erythropoietic action of cholinesterase. JOHN EMERSON DAVIS. *Univ. of Texas.*

9:45 **904.** Fe^{59} DTPA distribution and excretion in normal and anemic rats. J. V. PRINCIOTTO, R. DALY* AND M. RUBIN.* *Georgetown Univ.*

10:00 **905.** Phosphorylase activity in human erythrocytes. M. CORNBLATH, E. Y. LEVIN, E. MARQUETTI AND E. Y. HOUSE (intr. by C. COHN). *Michael Reese Hosp. and Sinai Hosp., Baltimore.*

10:15 **906.** Role of haptoglobin in the clearance of extracorpuscular hemoglobin. R. K. MURRAY, G. E. CONNELL AND J. H. PERT (intr. by K. C. FISHER). *Univ. of Toronto.*

10:30 **907.** Ca^{45} uptake by stored dog erythrocytes in sodium and potassium chloride solutions. A. OMACHI AND R. P. MARKEL.* *Univ. of Illinois.*

10:45 **908.** Role of medium composition and cooling rate in freezing and thawing red cells. G. F. DOEBBLER, R. E. GRECO AND A. P. RINFRET (intr. by E. WITEBSKY). *Linde Co., Div. of Union Carbide Corp.* (Immunol.)

11:00 **909.** Survival of platelets transfused into thrombocytopenic recipients. DUDLEY P. JACKSON AND JULIUS R. KREVANS.* *Johns Hopkins Univ. and Hosp.*

11:15 **910.** Peripheral counts and survival of blood platelets of mice. T. T. ODELL, JR. AND T. P. MCDONALD.* *Oak Ridge Natl. Lab.*

Heat Exposure; Environmental General

THURS. A.M.—MORRISON, VENETIAN ROOM

Chairman: David Minard

9:00 **911.** A new theoretical heat stress index. J. GOLD (intr. by J. W. HEIM). *Wright-Patterson AFB.*

9:15 **912.** Physiological index of strain and body heat storage in hyperthermia. JOHN F. HALL, JR. AND J. W. POLTE.* *Wright-Patterson AFB.*

9:30 **913.** Whole body exposure to temperatures above 250°F. PAUL WEBB. *Yellow Springs, Ohio.*

9:45 **914.** Effect of clothing color on heat load from solar radiation. J. R. BRECKENRIDGE,* R. L. PRATT* AND A. H. WOODCOCK. *Quartermaster Res. and Eng. Ctr.*

10:00 **915.** Production of pain and thermal burns in skin areas previously exposed to ultraviolet radiation. ALICE M. STOLL, LEON C. GREENE* AND JAMES D. HARDY. *U.S. Naval Air Develop. Ctr.*

10:15 **916.** Reduction in heat stress resulting from rest periods spent in a cool environment. GORDON J. STOPPS,* LUCIEN BROUHA, MARY E. MAXFIELD AND PAUL E. SMITH, JR.* *Haskell Lab., Newark, Del.*

10:30 **917.** Cutaneous vascular and sweating responses of the forearm. LEO C. SENAY, JR.* AND ALRICK B. HERTZMAN. *St. Louis Univ.*

10:45 **918.** Control of thermoregulatory responses in the dog after alteration of peripheral sensitivity. R. H. HELMENDACH AND J. P. MEEHAN (intr. by J. E. THOMAS). *College of Med. Evangelists and Univ. of Southern California.*

11:00 **919.** Effects of STH and ACTH on urea excretion of rats acclimated to various temperatures and pressures. HENRY B. HALE AND ROY B. MEFFERD, JR.* *Brooks AFB and VA Hosp.*

11:15 **920.** Circadian performance rhythms in men adapting to an 8-hr. day. G. T. HAUTY,* G. R. STEINKAMP,* W. R. HAWKINS* AND F. HALBERG. *Brooks AFB, and Univ. of Minnesota.*

11:30 **921.** Comparative effects of forward acceleration and exercise. A. R. SLONIM (intr. by R. F. KLINE). *Wright-Patterson AFB.*

11:45 **922.** Effects of low-frequency high-amplitude vertical sinusoidal vibration on respiration in human subjects. LEE R. DUFFNER* AND LYLE H. HAMILTON. *Marquette Univ. and Wood VA Hosp.*

Fatty Acids

THURS. A.M.—MORRISON, HOLLYWOOD ROOM

Chairman: O. E. Reynolds

9:00 **923.** Stearic acid as a poison. G. E. PRICE* AND R. H. BEUTNER. *Coll. of Osteopathic Med. and Surg., Des Moines, Ia.*

9:15 **924.** Regulation of fatty acid synthesis and direct oxidative pathway in adipose tissue. B. LEBOEUF AND G. F. CAHILL, JR. (intr. by G. W. THORN). *Harvard Univ.*

9:30 **925.** Effects of dietary lipid on incorporation of C^{14} acetate into liver fatty acids. J. D. EVANS AND R. C. BALDRIDGE. *Temple Univ.*

9:45 **926.** Effect of sympathetic blockade on plasma-free fatty acids. WILLIAM T. MCELROY, JR.* AND JOHN J. SPITZER. *Hahnemann Med. Coll.*

10:00 **927.** In vitro metabolism of short-chain fatty acids in bovine rumen epithelial tissue. K. KNOX, E. E. FLAMBOE, R. M. JOHNSON AND G. W. WARD (intr. by G. FILLEY). *Colorado State Univ.*

10:15 **928.** Nonesterified fatty acid (NEFA) production by rabbit lung tissue in vitro. H. O. HEINEMANN. *Francis Delafield Hosp. and Columbia Univ.*

10:30 **929.** Changes in the composition of plasma nonesterified fatty acids after insulin, glucose and norepinephrine. HANS MEINERTZ* AND VINCENT P. DOLE. *Rockefeller Inst.*

10:45 **930.** Fatty acid mobilization during pregnancy in the rat. E. KNOBIL AND J. B. JOSIMOVICH.* *Harvard Univ.*

Electrolytes II

THURS. A.M.—PALMER HOUSE, WABASH ROOM

Chairman: J. M. Little

9:00 **931.** In vitro steady-state relationship between internal and external potassium of the rat diaphragm. NORMAN G. LEVINSKY,* GEORGE W. GORHAM* AND ARNOLD S. RELMAN. *Massachusetts Mem. Hosps. and Boston Univ.*

9:15 **932.** Effect of protamine and strophanthin on the ability of mitochondria to concentrate potassium. LEONARD SHARE. *Western Reserve Univ.*

9:30 **933.** Transport phenomena in muscle studied by the

use of rat diaphragm as a 'membrane.' G. UNGAR AND D. V. ROMANO.* *U.S. Vitamin Corp.*

9:45 **934.** K and Na of rat diaphragm as affected by $HgCl_2$ in vitro. ELEONORE A. OHR (intr. by A. B. CRAIG, JR.). *Univ. of Rochester.*

10:00 **935.** Tissue electrolytes of rats given excess sodium chloride. ARTHUR S. HAIGHT AND JOHN M. WELLER. *Univ. of Michigan.*

10:15 **936.** Intermediary cellular metabolism related to electrolytes in the experimental nephrotic syndrome. T. YOSHIDA, F. YAMASHITA, E. KAISER, M. PICCARDO AND J. METCOFF (intr. by R. LEVINE). *Michael Reese Hosp. and Northwestern Univ.*

10:30 **937.** Frog skin epithelial cell membrane resistance. T. HOSHIKO. *Western Reserve Univ.*

10:45 **938.** Comparative study of erythrocyte sodium and potassium concentrations in vertebrates. WAYNE S. ZUNDEL* AND DIXON M. WOODBURY. *Univ. of Utah.* (Pharmacol.)

11:00 **939.** Mg-28 exchange between blood and lumbar CSF in man. J. H. MENDELSON AND B. A. BARNES (intr. by R. G. GRENELL). *Massachusetts Gen. Hosp. and Harvard Univ.*

11:15 **940.** Osmoregulation in the land crab, *Cardisoma guanhumi*. I. Regulation in dilute sea water. CHARLES E. LANE, CHARLES A. GIFFORD* AND FRANCIS J. BERNARD*. *Univ. of Miami.*

Thursday Afternoon, April 14, 1:30 p.m.

Gastric Secretion

THURS. P.M.—MORRISON, GRAND BALLROOM

Chairman: H. W. Davenport

1:30 **941.** Control of gastric secretion. H. W. DAVENPORT. *Univ. of Michigan.*

2:00 **942.** Site of gastric secretory stimulating action of aminoguanidine in the alimentary tract. K. W. LIEPINS (intr. by D. NELSON). *Univ. of Illinois.*

2:15 **943.** Effect of histamine and 1, 2, 4-triazole ethylamine on gastric secretion of HCl is additive. H. M. JANECEK (intr. by A. LANE). *Univ. of Illinois.*

2:30 **944.** Interpretation of effects of aminoguanidine and 1, 2, 4-triazole ethylamine on gastric secretion in light of the gastrin theory. A. C. IVY. *Univ. of Illinois.*

2:45 **945.** Effect of histamine metabolites and histaminase inhibitor on gastric secretion in dogs. R. S. ALPHIN* AND T. M. LIN. *Lilly Res. Labs.*

3:00 **946.** Effect of histamine analogs and histaminase inhibitor on gastric secretion. T. M. LIN, R. S. ALPHIN,* F. G. HENDERSON AND K. K. CHEN. *Lilly Res. Labs.* (Pharmacol.)

3:15 **947.** Significance of potassium in gastric secretion. F. HOLLANDER. *Mt. Sinai Hosp.*

3:30 **948.** Effects of alveolar O_2 and CO_2 on gastric secretion in man. A. NAITOVE* AND S. M. TENNEY (intr. by J. S. ROBB). *Dartmouth Coll.*

3:45 **949.** Transport of I^{131} in different areas of the dog stomach. M. H. F. FRIEDMAN, L. W. ROSEN,* JOAN FRANCO* AND S. KRAMER.* *Jefferson Med. Coll.*

4:00 **950.** Secretory studies on isolated gastric pouches in monkeys. CLOYDE L. FAUSNAUGH AND LLOYD M. NYHUS (intr. by D. D. FELLER). *Univ. of Washington.*

4:15 **951.** Heterogenous nature of hog pepsin and pepsinogen. JORDAN TANG AND KUEN-I TANG (intr. by STEWART WOLF). *Univ. of Oklahoma.*

Brain; Spinal Cord

THURS. P.M.—MORRISON, CONSTITUTION ROOM

Chairman: J. M. Brookhart

1:30 **952.** Projections of the prefrontal lobe in monkey. JUNE L. DEVITO AND ORVILLE A. SMITH, JR. (intr. by T. C. RUCH). *Univ. of Washington.*

1:45 **953.** Mitochondrial changes in developing rat brain. FREDERICK E. SAMSON, JR., WILLIAM M. BALFOUR* AND ROBERTA J. JACOBS. *Univ. of Kansas.*

2:00 **954.** Effect of cerebral edema on the thiocyanate space of rat brain. EUGENE STREICHER AND GILBERT D. PRESS (intr. by JAMES E. BIRREN). *Natl. Insts. of Health.*

2:15 **955.** Progressive increase of electroshock convulsive threshold in cats. CARL F. ESSIG AND HAROLD G. FLANARY.* *Natl. Insts. Mental Health Addiction Res. Center, Lexington, Ky.*

2:30 **956.** Perfusion of cerebral ventricular system in unanesthetized goats. J. R. PAPPENHEIMER, J. DEC. DOWNER AND J. N. NICHOLL, JR.* *Harvard Univ.*

2:45 **957.** Lack of regulatory action of cerebrospinal fluid on blood glucose concentration. HENRY A. SLOVITER. *Univ. of Pennsylvania.* (Biochem.)

3:00 **958.** Generation and propagation of the spike potential in spinal motoneurons. C. A. TERZUOLO AND T. ARAKI. *Univ. of California and Univ. of Minnesota.*

3:15 **959.** Intracellular potentials from dorsal root ganglion of cat. MAKOTO SATO AND GEORGE AUSTIN. *Univ. of Oregon.*

3:30 **960.** Single spinal motoneuron extracellular potential fields. P. G. NELSON,* K. FRANK AND W. RALL. *Natl. Insts. of Health.*

3:45 **961.** Bilateral facilatatory and inhibitory skin areas of spinal motoneurons of the cat. D. MEGIRIAN (intr. by A. L. TOWE). *Univ. of Washington.*

4:00 **962.** Effects of partial decentralization on the neuromuscular system of the rat. J. J. SEGUIN (intr. by G. W. STAVRAKY). *Univ. of Western Ontario.*

Pulmonary Diffusion

THURS. P.M.—MORRISON, MADISON ROOM

Chairman: H. L. Motley

1:30 **963.** Diffusion of oxygen into red blood cells. N. C. STAUB (intr. by RALPH H. KELLOGG). *Univ. of California.*

1:45 **964.** Influence of red cell membrane on O_2 diffusion. WILLIAM Z. YAHR AND FERDINAND KREUZER (intr. by R. E. FORSTER). *Dartmouth Coll.*

2:00 **965.** Pulmonary capillary blood volume and membrane diffusion component on exercise. D. V. BATES, C. J. VARVIS*, R. E. DONEVAN* AND R. V. CHRISTIE. *Royal Victoria Hosp. and Montreal Children's Hosp.*

2:15 **966.** Carbon monoxide diffusion capacity in severe emphysema. HURLEY L. MOTLEY AND ROMAN YANDA.* *UCLA.*

2:30 **967.** NH_3 as a normal respiratory gas. EUGENE D. ROBIN, PHILIP A. BROMBERG* AND CLAUDE E. FORKNER, JR.* *Univ. of Pittsburgh.*

2:45 **968.** Reflex stimulation of pulmonary ventilation by mixed venous P_{CO_2}. R. E. DUTTON,* SOM NATH* AND R. L. RILEY. *Univ. of Puebla and Johns Hopkins Univ.*

3:00 **969.** Alveolar-arterial oxygen gradient in dog at altitude. FERDINAND KREUZER. *Dartmouth Coll.*

3:15 **970.** Effect of respiratory maneuvers on uptake of carbon monoxide and calculated diffusing capacity during breath holding. THEODORE C. SMITH AND JOHN RANKIN (intr. by O. S. ORTH). *Univ. of Wisconsin.*

3:30 **971.** Effect of pressure suit inflation over the lower half of the body on breath holding pulmonary diffusion capacity for CO(DL). JOSEPH C. ROSS, G. D. LEY AND THOMAS J. LORD (intr. by JOHN B. HICKAM). *Indiana Univ. and VA Hosp.*

3:45 **972.** Effects of fever on pulmonary diffusing capacity and pulmonary mechanics in man. L. CANDER AND E. HANOWELL (intr. by E. P. RADFORD, JR.) *Tufts Univ. and New England Ctr. Hosp.*

Peripheral Blood Flow III

THURS. P.M.—MORRISON, EMBASSY ROOM

Chairman: Philip Dow

1:30 **973.** Blood pressure changes in arteries supplying the brain. WILLIAMINA A. HIMWICH, GIOVANNI AYALA,* JOANN PETERSEN* AND JUANITA GRAVES.* *Galesburg State Res. Hosp.*

1:45 **974.** Changes of extracranial circulation during hypoxia in young and older healthy men. ERNST SIMONSON. *Univ. of Minnesota.*

2:00 **975.** Effects of anoxia on vascular resistance of hindlimb. A. DIL, J. LITWIN AND D. M. AVIADO (intr. by CARL F. SCHMIDT). *Univ. of Pennsylvania.*

2:15 **976.** Adaptation of electrical impedance method to the study of circulation in the tooth pulp. F. LIEBMAN AND F. COSENZA (intr. by C. W. HAMPEL). *New York Univ. Dent. Coll., and Murry and Leonie Guggenheim Fndn. Inst. for Dent. Res.*

2:30 **977.** Method for measuring gas exchanges and clearance of CO_2 per centimeter of intestinal mucosa per minute. ALFRED W. BRODY, J. WILLIAM KNOX,* REGINALD S. CARVALHO,* JAMES J. NAVIN* AND ELMER E. KOBOLD.* *Creighton Univ.*

2:45 **978.** Gradient of blood flow in rat small intestine. SHELDON H. STEINER AND GUSTAVE C. E. MUELLER (intr. by L. A. SAPIRSTEIN). *Wright-Patterson AFB.*

3:00 **979.** In vivo estimation of regional colon blood flow. MARVIN BACANER AND MYRON POLLYCOVE (intr. by JOHN H. LAWRENCE). *Univ. of California.*

3:15 **980.** Genuine autoregulation of the renal circulation. R. G. SHANKS* AND W. H. WAUGH. *Med. Coll. of Georgia.*

3:30 **981.** A new method for in utero fetal operations: chronic blood vessel cannulation. B. T. JACKSON* AND R. H. EGDAHL. *Med. Coll. of Virginia.* (Pathol.)

3:45 **982.** Cutaneous capillary tests: comparison of graded negative pressure, positive pressure and reactive hyperemia in the human. A. G. LISI, S. GOLLUB AND A. W. ULIN (intr. by J. R. DIPALMA). *Hahnemann Hosp.*

Energy Metabolism; Exercise

THURS. P.M.—MORRISON, VENETIAN ROOM

Chairman: N. W. Shock

1:30 **983.** A calorimeter for continuous recording of energy metabolism of small laboratory animals. WILLIAM C. WHITE (intr. by E. R. BUSKIRK). *Natl. Insts. of Health.*

1:45 **984.** A continuous recording oxygen debt analyzer. JACK W. CROWELL (intr. by L. H. SCHNEYER). *Univ. of Mississippi.*

2:00 **985.** Continuous oxygen determination in gases by the polarographic method. EGIDIO FULCHIGNO* AND STEVENS J. MARTIN. *St. Francis Hosp., Hartford, Conn.*

2:15 **986.** Technique and experiences with gas chromatography in blood gas analysis. BERNARD FISHER AND B. W. TAYLOR.* *Univ. of Pittsburgh.*

2:30 **987.** Aerobic capacity in relation to body size and composition. D. CARDUS,* T. P. K. LIM, E. C. ANDERSON,* J. HOWARTH* AND U. C. LUFT. *Lovelace Fndn. and Los Alamos Sci. Labs.*

2:45 **988.** Paper electrophoretic analysis of sera of healthy Negro college men engaged in sport competition. T. F. JOHNSON* AND HARRY Y. C. WONG. *Howard Univ.*

3:00 **989.** Performance of rats in standardized treadmill tests. D. C. JONES, D. J. KIMELDORF AND G. K. OSBORN.* *U.S. Naval Radiol. Def. Lab.*

3:15 **990.** Effects of feeding on activity and temperature in mice. W. PARSON, W. K. SMITH AND G. HOLLIFIELD (intr. by G. C. PITTS). *Univ. of Virginia.*

Electrolyte Excretion

THURS. P.M.—PALMER HOUSE, WABASH ROOM

Chairman: W. S. Wilde

1:30 **991.** Effect of damage to the first part of the proximal tubule on electrolyte excretion. T. FREDERICK NICHOLSON. *Univ. of Toronto.*

1:45 **992.** Effect of a mercurial diuretic on sodium flux across proximal tubular epithelium. A. BISNO, I. KASSER, D. ROLF, D. C. TOSTESON AND H. L. WHITE (intr. by A. S. GILSON). *Washington Univ.*

2:00 **993.** Experimental ascites with marked sodium retention after transplant of the left kidney to the neck and right nephrectomy. CHARLES C. J. CARPENTER, JOHN HOLMAN, CARLOS R. AYERS AND JAMES O. DAVIS (intr. by ROBERT P. AKERS). *Natl. Insts. of Health.*

2:15 **994.** Roles of blood and urine flows in distributing THO and Na^{22} within kidney. H. L. WHITE, D. C. TOSTESON AND D. ROLF.* *Washington Univ.*

2:30 **995.** Determination of osmolarity in frozen kidney slices. G. A. BRAY (intr. by R. W. BERLINER). *Natl. Insts. of Health.*

2:45 **996.** Concentrating ability and kidney structure. R. O'DELL AND B. SCHMIDT-NIELSEN (intr. by K. SCHMIDT-NIELSEN). *Duke Univ.*

3:00 **997.** Concentrating ability of the diseased kidney, influence of GFR, solute excretion and hydration. NEAL S. BRICKER, S. W. KIME, JR.,* P. A. F. MORRIN* AND TADEUSZ ORLOWSKI.* *Washington Univ.*

3:15 **998.** Renal activity of vasopressin in anesthetized dogs. JOSEPH H. PERLMUTT. *Univ. of North Carolina.*

Radiation

THURS. P.M.—PALMER HOUSE, MONROE ROOM

Chairman: H. J. Curtis

1:30 **999.** Lethality of upper body x-irradiation. CARL L. HANSEN, JR.,* SOL M. MICHAELSON* AND JOE W. HOWLAND. *Univ. of Rochester.*

1:45 **1000.** Reduction in intestinal radiation deaths by single postexposure injection of sugars or casein hydrolysate. MARGUERITE N. SWIFT AND S. TOM TAKETA.* *U.S. Naval Radiol. Def. Lab.*

2:00 **1001.** Urinary taurine excretion patterns in the rat, rabbit, guinea pig and dog following exposure to whole body x-irradiation. CHARLES R. ANGEL* AND THOMAS R. NOONAN. *Univ. of Rochester.*

2:15 **1002.** Effects of B-radiation on phosphorus metabolism in the skin of young rats. I. A. BERNSTEIN AND P. FOSTER.* *Univ. of Michigan.* (Biochem.)

2:30 **1003.** Rate of lens opacification in x-ray and neutron exposed rats. D. J. KIMELDORF AND L. M. COX.* *U.S. Naval Radiol. Def. Lab.*

2:45 **1004.** Low temperature protection of x-irradiated mouse bone marrow cells. MENACHEM LION* AND L. H. SMITH. *Oak Ridge Natl. Lab.*

3:00 **1005.** A measure of residual radiation damage to the rat erythrocyte precursor system. SIEGMUND J. BAUM (intr. by EDWARD L. ALPEN). *U.S. Naval Radiol. Def. Lab.*

3:15 **1006.** Hematological response of newborn rats to x-irradiation. GEORGE W. COOPER* AND ALBERT S. GORDON. *New York Univ. and Sloan-Kettering Inst.*

3:30 **1007.** Effect of S-(2-aminoethyl) thiuronium bromide hydrobromide (AET) on sodium uptake of irradiated human erythrocytes. PAUL NOVACK AND BERNARD SHAPIRO (intr. by ROBERT M. DOWBEN). *Albert Einstein Med. Ctr.*

3:45 **1008.** Homograft-reactive large mononuclear leukocytes in peripheral blood and peritoneal exudates. LEONARD J. COLE AND RICHARD W. GARVER.* *U.S. Naval Radiol. Def. Lab.*

4:00 **1009.** Influence of x-radiation on a serum globulin component in the C_3H_f/HeHa mouse. E. S. GORANSON, E. A. CINITS* AND E. A. MCCULLOCH.* *Univ. of Toronto and Ontario Cancer Inst.*

4:15 **1010.** Effects of x-irradiation on chemical composition of rabbit brain. G. R. ROWLEY AND R. J. DELLENBACK (intr. by W. S. ROOT). *Columbia Univ.*

4:30 **1011.** Radiation-induced depression of DNA synthesis in the regenerating rat liver. S. OKADA AND C. M. WHEELER (intr. by H. A. BLAIR). *Univ. of Rochester.*

Physiology Society Business Meeting

THURSDAY, 4:30 P.M.—MORRISON, CONSTITUTION ROOM

Exhibits—Inspection Periods

Monday: 8:00 A.M. to 5:00 P.M.

Tuesday through Thursday: 8:45 A.M. to 5:00 P.M.

Friday: 8:45 A.M. to 12:00 noon

Intersociety Sessions

See program, pages 426–443, for sessions on 'Atherosclerosis', 'Blood Clotting', 'Cytology', 'Endocrinology', 'Gastroenterology', 'Muscle', 'Neuropharmacology and Tissue Culture', and for Intersociety symposia.

Friday Morning, April 15, 9:00 a.m.

Cardiac Dynamics II

FRI. A.M.—MORRISON, GRAND BALLROOM

Chairman: A. F. Cournand

9:00 **1012.** Effect of stellate ganglion stimulation on production of catechols by the heart. J. H. SIEGEL, J. P. GILMORE AND S. J. SARNOFF (intr. by J. SHANNON). *Natl. Insts. of Health.*

9:15 **1013.** Integration of sympathetic cardioacceleration in the central nervous system. CLARENCE N. PEISS. *Loyola Univ.*

9:30 **1014.** Carotido-vago-atrial and carotido-sympatho-atrial reflexes. J. P. GILMORE, J. H. MITCHELL* AND S. J. SARNOFF. *Natl. Insts. of Health.*

9:45 **1015.** Myocardial contractility under hypothermia. E. T. ANGELAKOS AND A. H. HEGNAUER. *Boston Univ.*

10:00 **1016.** Reflex effects of left ventricular distention. C. E. CROSS, P. F. SALISBURY AND P. A. RIEBEN (intr. by A. SURTSHIN). *St. Joseph Hosp., Burbank, Calif.*

10:15 **1017.** Cardiovascular effects of distortion of stretch receptors in the cardiac walls. F. W. KLUSSMANN, R. L. VAN CITTERS AND R. F. RUSHMER (intr. by RUDOLF THAUER). *Univ. of Washington.*

10:30 **1018.** Instantaneous dimensional changes of the left ventricle in awake dogs. E. W. HAWTHORNE, M. GASPAR* AND W. G. POGUE. *Howard Univ.*

10:45 **1019.** Determinants of the relationship between left ventricular end diastolic pressure and circumference. EUGENE BRAUNWALD, ROBERT L. FRYE* AND JOHN ROSS, JR.* *Natl. Insts. of Health.*

11:00 **1020.** Cardiac hypertrophy due to hypoxia in male and female rats. DAVID W. NORTHRUP AND EDWARD J. VAN LIERE. *West Virginia Univ.*

11:15 **1021.** Paradoxical responses of the mural strain gauge arch to localized ischemia. A. H. KATCHER, M. E. HESS, G. PEIRCE, J. J. SAYEN, W. F. SHELDON AND P. CRUM (intr. by O. HORWITZ). *Univ. of Pennsylvania.*

Respiration Mechanics III

FRI. A.M.—MORRISON, MADISON ROOM

Chairman: Hermann Rahn

9:00 **1022.** Some limitations on the study of uneven pulmonary ventilation by present methods: a theoretical analysis. R. E. NYE, JR. (intr. by HENRY A. SCHROEDER). *Dartmouth Coll.*

9:15 **1023.** Inspiratory and expiratory vital capacity time (IVCT and EVCT) obtained from breath velocity-volume loops. R. G. BARTLETT, JR., AND N. E. PHILLIPS.* *U.S. Naval Sch. of Aviation Med.*

9:30 **1024.** Studies on collateral ventilation. H. B. MARTIN AND F. HOLMSTROM. *Harvard Sch. of Publ. Health.*

9:45 **1025.** Oxygen cost of breathing. Estimates based on respiratory muscle force. MAURICE MCGREGOR AND MARGARET R. BECKLAKE.* *Royal Victoria Hosp. and Montreal Children's Hosp.*

10:00 **1026.** Static pressure-volume characteristics of lungs in normal males. SOLBERT PERMUTT AND HARRY MARTIN (intr. by JOHN L. CHAPIN). *Johns Hopkins Univ.*

10:15 **1027.** Pulmonary alveolar stability. JOHN A. CLEMENTS. *Army Chem. Ctr., Md.*

10:30 **1028.** Factors determining steady state contractions of abdominal muscles. W. B. YOUMANS, L. D. DAVIS,* J. K. TURNER* AND D. I. BRIGGS.* *Univ. of Wisconsin.*

Sex; Reproduction

FRI. A.M.—MORRISON, EMBASSY ROOM

Chairman: S. M. Horvath

9:00 **1029.** An effect of reserpine on growth and sexual maturation. PAUL HAGEN AND A. C. WALLACE.* *Univ. of Manitoba.* (Pharmacol.)

9:15 **1030.** Effect of cortisone on the maturation of the gonads and sex ratio of rats. M. WHITE* AND E. DA COSTA. *Chicago Teachers Coll.*

9:30 **1031.** Maintenance of gestation in the rat. J. YOCHIM* AND M. X. ZARROW. *Purdue Univ.*

9:45 **1032.** In vitro ovarian and adrenal metabolism of gravid and nongravid rabbits and guinea-pigs. J. F. ROUX AND S. L. ROMNEY (intr. by A. GILMAN). *Yeshiva Univ.*

10:00 **1033.** Mammary gland status in declining lactation. RICHARD C. MOON (intr. by R. H. ALDEN). *Univ. of Tennessee.*

10:15 **1034.** Fertilizing capacity of rabbit spermatozoa treated with sonic vibration. M. C. CHANG AND D. M. HUNT.* *Worcester Fndn.*

10:30 **1035.** Temperature shock in mammalian spermatozoa. J. K. SHERMAN. *Univ. of Arkansas.*

10:45 **1036.** Exhaustive electroejaculation in the bull. M. L. HOPWOOD* AND F. X. GASSNER. *Colorado State Univ.*

11:00 **1037.** Functional ultrastructure of the rat ventral prostate. DAVID BRANDES, D. P. GROTH AND ADOLFO PORTELA (intr. by S. E. MAYER). *Emory Univ.* (Pharmacol.)

Absorption from Gastrointestinal Tract

FRI. A.M.—MORRISON, VENETIAN ROOM

Chairman: F. R. Steggerda

9:00 **1038.** 'Absorption pressure' of rat intestine during water absorption in vitro. J. S. LEE (intr. by N. LIFSON). *Univ. of Minnesota.*

9:15 **1039.** In vitro studies of intestinal absorption in the turtle, *chrysemys picta.* Sister ALICE MARIE FOX* AND X. J. MUSACCHIA. *St. Louis Univ.*

9:30 **1040.** Influence of pyridoxine, pyridoxal, pyridoxal phosphate, deoxypyridoxine and 2,4-dinitrophenol on L-tyrosine absorption. F. A. JACOBS, R. C. FLAA AND W. F. BELK (intr. by H. J. FROMM). *Univ. of North Dakota* (Biochem.)

9:45 **1041.** New Thiry fistula method used to study absorption of thiamine by the jejunum and ileum. ALBERTO C. DE SILVA (intr. by M. J. SCHIFFRIN). *Univ. of Illinois.*

10:00 **1042.** Effect of oleic acid on endogenous fecal excretion of sterol in the dog. R. WOJCIECH (intr. by W. H. BACHRACH). *Univ. of Illinois.*

10:15 **1043.** Relation of chemical structure of cholanic acids

to intestinal absorption of cholesterol. R. SUZUKI (intr. by R. C. INGRAHAM).

10:30 **1044.** Effect of sodium dehydrocholate and niacin on cholesterol absorption. C. S. NARAYANA SETTY (intr. by H. C. BATSON). *Univ. of Illinois.* (Immunol.)

10:45 **1045.** In vitro absorption of glyceride fatty acids. H. C. TIDWELL AND JOHN M. JOHNSTON.* *Univ. of Texas.* (Biochem.)

11:00 **1046.** Fat excretion in dogs lacking both bile and pancreatic juice. BENNETT J. COHEN (intr. by R. R. SONNENSCHEIN). *UCLA.*

Liver; Enzymes; General

FRI. A.M.—MORRISON, HOLLYWOOD ROOM

Chairman: H. E. Essex

9:00 **1047.** Some effects of colchicine on liver. LOLA S. KELLY. *Univ. of California.*

9:15 **1048.** Hepatic clearance of indocyanine dye. JOHN KAMPINE,* W. J. STEKIEL* AND JAMES J. SMITH. *Marquette Univ.*

9:30 **1049.** Hepatic glycogenolytic effect of vasopressin. STANLEY S. BERGEN, JR., ROBERT SULLIVAN AND JAMES G. HILTON. *St. Luke's Hosp., New York.*

9:45 **1050.** Hepatic conjugation and excretion of phenolsulphonphthaleins. AGAMEMNON DESPOPOULOS AND CHARLES W. GROSS.* *Univ. of Louisville.*

10:00 **1051.** Microanalytical technique for the quantitation of selected enzyme-substrate systems. R. L. DAVIS,* A. H. LAWTON, S. B. MACINTYRE* AND B. F. CHOW.* *VA Ctr., Bay Pines, Fla. and Johns Hopkins Univ.*

10:15 **1052.** Effect of feeding on succinoxidase activity in selected rat tissue. READ R. NIELSON,* ANTHONY J. STEFFEK,* ALVIN F. RIECK AND HOWARD M. KLITGAARD. *Marquette Univ.*

10:30 **1053.** Studies of the physiological basis (ES) for differences in serum alkaline phosphatase level of two lines of White Leghorns. F. H. WILCOX (intr. by R. M. FRAPS). *Univ. of Maryland.*

10:45 **1054.** A protein moiety inhibitory to HeLa cell growth in sera of burned children. R. I. LYTLE, L. F. MILLER AND S. R. ROSENTHAL (intr. by E. R. KIRCH). *Naval Med. Res. Unit No. 4 and Univ. of Illinois.*

11:00 **1055.** Noncirculating extravascular serum albumin. WILLIAM R. JEWELL, JOSE C. GAN AND HENRY JEFFAY (intr. by BERNARD WEISSMANN). *Univ. of Illinois.*

11:15 **1056.** Interactions of age and formaldehyde on the mechanical properties of rat tail tendon. JOHN D. SPIKES. *Univ. of Utah.*

11:30 **1057.** Comparative toxicity of Atlantic puffer fishes of the genera *spheroides, lactophrys, lagocephelius* and *chilomycterus.* EDWARD LARSON, R. C. LALONE AND LUIS R.RIVAS. *Icthyological Lab. and Museum and Univ. of Miami.*

Body Fluids; Lymph

FRI. A.M.—PALMER HOUSE, WABASH ROOM

Chairman: A. V. Wolf

9:00 **1058.** Rapid determination of D_2O in biological fluids by the use of the infrared absorption spectrophotometer. M. D. TURNER, WILLIAM A. NEEDY AND JAMES D. HARDY. *Univ. of Mississippi Med. Ctr.*

9:15 **1059.** Intracellular water concentration in the heart after 700 r of x-rays. W. O. CASTER. *Univ. of Minnesota.* (Biochem.)

9:30 **1060.** Body and brain electrolytes after massive infusion of 5% glucose or hypotonic NaCl. J. N. BARKER AND J. P. CAPELLI (intr. by W. J. SNAPE). *Jefferson Med. Coll.*

9:45 **1061.** Changes in excretion rates not mediated by volume receptors. ERNEST L. DOBSON, FRANK J. KELLY* AND FREDERICK P. MUSTELL.* *Donner Lab., Univ. of California.*

10:00 **1062.** Levels of calcium, phosphorus, protein and alkaline phosphatase in effusion fluids and serum. ARTHUR FELDSTEIN, JOSEPH SAMACHSON AND HERTA SPENCER (intr. by JULIAN HERMANN). *Montefiore Hosp.*

10:15 **1063.** Intracellular alkalosis produced by desoxycorticosterone acetate (DCA) in rat skeletal muscle. C. D. WITHROW* AND DIXON M. WOODBURY. *Univ. of Utah.* (Pharmacol.)

10:30 **1064.** Mammary lymph flow and composition in lactating goats. MONICA REYNOLDS. *Univ. of Pennsylvania.*

Friday Afternoon, April 15, 1:00 p.m.

Blood Volume; ECG

FRI. P.M.—MORRISON, GRAND BALLROOM

Chairman: H. C. Wiggers

1:00 **1065.** Simultaneous blood volume measurement with Cr^{51}-tagged cells and T-1824. J. W. REMINGTON AND C. H. BAKER. *Med. Coll. of Georgia.*

1:15 **1066.** Disappearance of T-1824 from the circulation of normovolemic and bled dogs. C. H. BAKER AND J. W. REMINGTON. *Med. Coll. of Georgia.*

1:30 **1067.** Measurement of plasma volume and of capillary permeability in the turtle using T-1824 and various dextran fractions. ROBERT E. SEMPLE. *Queen's Univ., Kingston, Ontario.*

1:45 **1068.** Evaluation of changes in body fluid distribution by regional weighing. COLIN FELL AND ROBERT F. RUSHMER (intr. by G. L. MAISON). *Univ. of Washington.*

2:00 **1069.** Red cell volume in the kidney of the rat. P. N. FARNSWORTH (intr. by L. J. CIZEK). *Columbia Univ.*

2:15 **1070.** Relationship of blood pressure and ECG amplitudes and spatial vectors in healthy subjects. PENTTI RAUTAHARJU AND HENRY W. BLACKBURN (intr. by H. L. TAYLOR). *Univ. of Minnesota.*

2:30 **1071.** QRS and T axes in beef cattle. HUGO KRUEGER, WILLIAM C. VAN ARSDEL, III* AND RALPH BOGART.* *Oregon State Coll.*

2:45 **1072.** Depolarization and repolarization in the hypothermic dog heart. J. C. TORRES,* E. T. ANGELAKOS AND A. H. HEGNAUER. *Boston Univ.*

3:00 **1073.** Intraventricular conduction disturbances in acute myocardial infarction. MARIA ISABEL RODRIQUEZ. *Univ. of El Salvador.*

3:15 **1074.** Myocardial ECGs in localized ischemia. J. J. SAYEN, A. H. KATCHER,* G. PEIRCE,* W. F. SHELDON* AND E. H. CHRISTMAN. *Univ. of Pennsylvania.*

Diuresis

FRI. P.M.—PALMER HOUSE, WABASH ROOM

Chairman: M. Gregersen

1:00 **1075.** Diuretics in thyroidectomized rats. C. MIRAS (intr. by T. J. HALEY). *Univ. of Athens.* (Pharmacol.)

1:15 **1076.** Effect of phenazocine hydrobromide on diuresis. BENNETT P. LUSTGARTEN,* SOLOMON FISCH,* AND ARTHUR C. DEGRAFF. *VA Hosp., Bronx.* (Pharmacol.)

1:30 **1077.** Carbon dioxide diuresis at high altitude. H. VALTIN* AND S. M. TENNEY. *Dartmouth Coll.*

1:45 **1078.** Effect of diuresis on flow and composition of renal lymph. S. J. LEBRIE* AND H. S. MAYERSON. *Tulane Univ.*

2:00 **1079.** Free water formation in normal dogs. E. LOVELL BECKER. *Cornell Univ.*

2:15 **1080.** Hyposmolar urine formation during plasma hyperosmolality. E. BRESLER, J. MONROE AND J. GILMARTIN (intr. by L. CHURNEY). *VA Hosp. and Tulane Univ.*

2:30 **1081.** Evaluation of renal countercurrent hypothesis in *Aplodontia.* W. C. NUNGESSER, E. W. PFEIFFER, D. A. IVERSON AND J. F. WALLERIUS (intr. by B. DEBOER). *Univ. of North Dakota.*

2:45 **1082.** Uptake of radiomercury by nephridia of *Phascolosoma gouldi.* ROGER L. GREIF. *Cornell Univ.*

3:00 **1083.** Direct renal action of cardiac glycosides and structurally related compounds. J. C. STRICKLER,* R. H. KESSLER AND R. F. PITTS. *Cornell Univ.*

3:15 **1084.** Excretion of C^{14}-hydrochlorothiazide in the bile and pancreatic juice of dogs. ELMER B. PRATT AND JERRY K. AIKAWA.* *Univ. of Colorado.*

Tickets

Tickets for group breakfasts, luncheons and dinners; Society dinners; Smoker; and other Federation functions will be on sale in the registration area, Conrad Hilton Hotel.

Federation Office: ROOM 505, CONRAD HILTON HOTEL

American Society of Biological Chemists

Fifty-first Annual Meeting

Monday Morning, April 11, 9:00 a.m.

SYMPOSIUM: Biochemical Genetics

MON. A.M.—CONRAD HILTON, GRAND BALLROOM

Chairman: Fritz Lipmann

9:00 **1085.** Introduction. FRITZ LIPMANN. *Rockefeller Inst.*
9:10 **1086.** Genetic fine structure and the molecular structure of DNA. SEYMOUR BENZER. *Purdue Univ.*
9:50 **1087.** Mechanisms in the enzymatic synthesis of DNA. ARTHUR KORNBERG. *Stanford Univ.*
10:30 **1088.** Genetic transformations affecting enzyme production and specificity in bacteria. ROLLIN D. HOTCHKISS. *Rockefeller Inst.*
11:10 **1089.** Genetic fine structure and enzyme formation. DAVID M. BONNER. *Yale Univ.*

SYMPOSIUM: Topics of Current Interest in Biochemistry

MON. A.M.—CONRAD HILTON, WILLIFORD ROOM

Chairman: Severo Ochoa

9:00 **1090.** Introduction. SEVERO OCHOA. *New York Univ.*
9:10 **1091.** Chemical synthesis of mono- and polynucleotides. H. G. KHORANA. *Univ. of British Columbia.*
9:40 **1092.** Bioluminescence. W. D. MCELROY. *Johns Hopkins Univ.*
10:10 **1093.** Biosynthesis of diaminopimelic acid. C. GILVARG. *New York Univ.*
10:40 **1094.** Oxidative phosphorylation. A. L. LEHNINGER. *Johns Hopkins Univ.*
11:10 **1095.** Folic acid coenzymes. J. C. RABINOWITZ. *Univ. of California.*

Monday Afternoon, April 11, 1:30 p.m.

Enzymes I

MON. P.M.—CONRAD HILTON, GRAND BALLROOM

Chairman: G. W. Schwert

1:30 **1096.** Enzymatic reaction kinetics studied by multiple automatic recording of absorbance changes. W. A. WOOD. *Michigan State Univ.*
1:45 **1097.** pH dependence of competitive inhibition of fumarase. PAUL W. WIGLER* AND ROBERT A. ALBERTY. *Univ. of Wisconsin.*
2:00 **1098.** Studies of isotope effects with carbonic-anhydrase using C^{14} bicarbonate. JOSEPH L. RABINOWITZ. *Univ. of Pennsylvania.*
2:15 **1099.** Isotope fractionation during H_2 formation. M. I. KRICHEVSKY, F. D. SISLER AND I. FRIEDMAN (intr. by B. WRIGHT). *Natl. Insts. of Health and U. S. Geol. Survey.*
2:30 **1100.** Mechanism of enzymatic hydrogen transfer reactions. R. H. BAKER, JR.,* R. SUZUE* AND H. R. MAHLER. *Indiana Univ.*

2:45 **1101.** Further exploration of active center of monoamine oxidase (MO) with cycloalkylamines. E. A. ZELLER AND S. SARKAR.* *Northwestern Univ.*

3:00 **1102.** Optical rotation in enzymatic inhibition. D. D. ULMER AND B. L. VALLEE. *Harvard Univ.*

3:15 **1103.** DPN, DPN-analog and DPNH binding by rat liver lactic dehydrogenase. C. YVONNE KARNES,* E. D. IHNEN AND C. S. VESTLING. *Univ. of Illinois.*

3:30 **1104.** Nature of the phenomenon of fluorescence enhancement in enzyme-DPNH complexes. H. F. FISHER (intr. by D. H. BASINSKI). *Edsel B. Ford Inst.*

3:45 **1105.** Coenzyme binding sites of DPN-linked dehydrogenases. R. H. MCKAY,* S. SHIFRIN* AND N. O. KAPLAN. *Brandeis Univ.*

4:00 **1106.** Mechanism of formate activation by tetrahydrofolic acid formylase. R. H. HIMES* AND J. C. RABINOWITZ. *Univ. of California.*

4:15 **1107.** Evidence for intermediate in enzymatic synthesis of glutamine. P. R. KRISHNASWAMY, V. PAMILJANS AND ALTON MEISTER. *Tufts Univ.*

Electron Transport I

MON. P.M.—CONRAD HILTON, NORMANDIE LOUNGE

Chairman: Elmer Stotz

1:30 **1108.** Electron transferring particle from *Mycobacterium tuberculosis*. A. L. SHUG* AND D. S. GOLDMAN. *VA Hosp., Madison.*

1:45 **1109.** Characterization of a new electron transport component isolated from *Mycobacterium phlei*. W. B. SUTTON. *Lilly Research Labs.*

2:00 **1110.** Solubilization of the particulate fraction of a pyruvate oxidase system. F. R. WILLIAMS* AND L. P. HAGER. *Harvard Univ.*

2:15 **1111.** Electron transmitter system in adipose tissue. C. D. JOEL* AND E. G. BALL. *Harvard Univ.*

2:30 **1112.** Electron transfer by glutathione-menadione complex (thiodione) in terminal reductions. W. J. NICKERSON, G. FALCONE* AND G. STRAUSS.* *Rutgers Univ.*

2:45 **1113.** Function of vitamin E in mitochondria and microsomes. A. L. TAPPEL, H. ZALKIN* AND F. W. KNAPP.* *Univ. of California.*

3:00 **1114.** Nature of the heme binding in cytochrome b_5. P. STRITTMATTER (intr. by D. H. BROWN). *Washington Univ.*

3:15 **1115.** Lipid complexes of cytochrome *c*. M. REICH* AND W. W. WAINIO. *Rutgers Univ.*

3:30 **1116.** Biological activity of a purified cytochrome c_1 preparation. R. P. GLAZE* AND M. MORRISON. *Univ. of Rochester.*

3:45 **1117.** Immunochemical studies on rhodospirillum heme protein. J. A. ORLANDO* AND M. D. KAMEN. *Brandeis Univ.*

4:00 **1118.** Effect of cholate on cytochrome *c* oxidase. A. P. MARTIN* AND E. STOTZ. *Univ. of Rochester.*

4:15 **1119.** Magnetic titration of cytochrome oxidase. T. YONETANI (intr. by A. N. RICHARDS). *Univ. of Pennsylvania.*

Steroids I

MON. P.M.—CONRAD HILTON, UPPER TOWER

Chairman: L. L. Engel

1:30 **1120.** Influence of estrogens on phospholipid metabolism in rat uterine segments. Y. AIZAWA* AND G. C. MUELLER. *Univ. of Wisconsin.*

1:45 **1121.** Hormonal effect on steroid conjugation. D. L. BERLINER AND T. F. DOUGHERTY. *Univ. of Utah.* (Physiol.)

2:00 **1122.** Stimulation of lymphosarcoma ATPase activity by steroids. M. BLECHER (intr. by H. STRECKER). *Albert Einstein Coll. of Med.*

2:15 **1123.** Steroid hormone effects on liver aldehyde dehydrogenase activity. E. S. MAXWELL AND Y. J. TOPPER. *Natl. Insts. of Health.*

2:30 **1124.** Estrogen stimulation of ATP production and protein synthesis. C. A. VILLEE, P. B. JOEL,* J. M. LORING* AND J. M. SPENCER.* *Harvard Univ.*

2:45 **1125.** 17β-estradiol sensitive enzymes of human choriocarcinoma. D. A. KELLOGG (intr. by R. HERTZ). *Natl. Insts. of Health.* (Physiol.)

3:00 **1126.** Effect of steroid hormones on rate of reaction of L-glutamic acid dehydrogenase. L. L. ENGEL, J. F. SCOTT AND R. F. COLMAN. *Massachusetts Gen. Hosp. and Harvard Univ.*

3:15 **1127.** Interaction of estrogen sulfates with B_6-enzymes: evidence for physiological significance. M. MASON AND E. C. GULLEKSON.* *Univ. of Michigan.*

3:30 **1128.** Association between testosterone and amino acids. D. ABELSON AND C. B. DEPATIE (intr. by C. N. H. LONG). *Yale Univ.*

3:45 **1129.** Interaction of steroids with urea and related compounds. G. F. LATA AND L. K. DAC (intr. by G. KALNITSKY). *State Univ. of Iowa.*

4:00 **1130.** Preparation of derivatives of steroid hormones by direct chromic acid oxidation on paper. F. M. GANIS (intr. by F. L. HAVEN). *Univ. of Rochester.*

4:15 **1131.** Radiochemical purity of H^3-β-sitosterols tritiated by the Wilzbach procedure and by exchange over platinum dioxide. H. WERBIN, I. L. CHAIKOFF AND M. R. IMADA.* *Univ. of California.*

Carbohydrates I

MON. P.M.—CONRAD HILTON, WILLIFORD ROOM

Chairman: H. M. Kalckar

1:30 **1132.** Enzymatic synthesis of N-acetylmannosamine 6-phosphate. S. ROSEMAN, F. HAYES* AND S. GHOSH.* *Univ. of Michigan.*

1:45 **1133.** Kinases in an N-acetyl-D-glucosamine-requiring *Lactobacillus bifidus*. P. J. O'BRIEN,* M. C. GLICK* AND F. ZILLIKEN. *Univ. of Pennsylvania.*

2:00 **1134.** Isolation of galactokinase from yeast. M. R. HEINRICH AND J. B. NEILANDS. *Univ. of California.*

2:15 **1135.** Glucose and galactose metabolism in rabbit polymorphonuclear leukocytes. R. STJERNHOLM AND E. P. NOBLE (intr. by C. COOPER). *Western Reserve Univ.*

2:30 **1136.** Labeling of lactose precursors from mammary gland. R. G. HANSEN, H. G. WOOD AND G. PEETERS.* *Mich. State Univ., Western Reserve Univ. and Univ. of Ghent.*

2:45 **1137.** Enzymatic metabolism of uridinediphosphate glucose by soluble enzymes from spinach. D. O. BRUMMOND (intr. by R. A. SHIPLEY). *Western Reserve Univ.* (Physiol.)

3:00 **1138.** Insulin treatment and UDPG glycogen transglucosylase activity. C. VILLAR-PALASI* AND J. LARNER. *Western Reserve Univ.*

3:15 **1139.** Enzymatic synthesis of the peptide in a uridine nucleotide in *S. aureus*. J. L. STROMINGER AND E. ITO.* *Washington Univ.*

3:30 **1140.** Metabolism of colitose. E. C. HEATH (intr. by L. H. LOUIS). *Univ. of Michigan.*

3:45 **1141.** Studies on the biosynthesis of GDP-L-fucose. V. GINSBURG. *Natl. Insts. of Health.*

4:00 **1142.** Function of inositol in the biosynthesis of yeast

cell-wall polysaccharides. A. K. GHOSH,* F. C. CHARALAMPOUS AND Y. SISON.* *Univ. of Pennsylvania.*

Cell Metabolism

MON. P.M.—CONRAD HILTON, ASTORIA ROOM

Chairman: M. L. Karnovsky

1:30 **1143.** Dialyzable constituents of squid nerve axoplasm. G. G. J. DEFFNER AND R. E. HAFTER (intr. by F. O. SCHMITT). *Massachusetts Inst. of Technol.* (Physiol.)

1:45 **1144.** Changes in chemical composition and cell size accompanying cessation of multiplication in *Tetrahymena pyriformis*. Y. W. J. WINGO AND W. D. THOMPSON.* *Univ. of Alabama.*

2:00 **1145.** Nitrogen and phosphorus metabolism during the synchronous growth of *Chlorella pyrenoidosa*. R. R. SCHMIDT (intr. by R. F. MILLER). *Virginia Polytech. Inst.* (Nutr.)

2:15 **1146.** Metabolic pathways associated with phagocytosis. W. EVANS* AND M. L. KARNOVSKY. *Harvard Univ.*

2:30 **1147.** Biosynthesis of C_4 acids in *Pseudomonas fluorescens* KB1. C. H. WANG AND G. IKEDA. *Oregon State Coll.*

2:45 **1148.** α-Glycerophosphate cycle and lactic dehydrogenase of hematopoietic cells in normal and leukemic mice. B. SACKTOR AND A. DICK. *Army Chem. Ctr.*

3:00 **1149.** Histidine decarboxylase in leukemic basophils. W. J. HARTMAN (intr. by R. L. LIBBY). *UCLA.* (Immunol.)

3:15 **1150.** Metabolism of C^{14}-carboxyl-labeled-3-hydroxyanthranilic acid and para-aminobenzoic acid-1-C^{14} in neoplastic mice. L. V. HANKES, M. SCHMAELER* and R. D. STONER. *Brookhaven Natl. Lab.*

3:30 **1151.** Allantoin excretion in tumor-bearing rats. J. WHITE, R. H. BROOKS,* J. N. TOAL* AND F. K. MILLAR.* *Natl. Insts. of Health.*

3:45 **1152.** A critical analysis of the metabolic tissue slice procedure. J. CASCARANO (intr. by H. GREEN). *New York Univ.* (Immunol.)

Viruses and Genetic Mechanisms

MON. P.M.—CONRAD HILTON, BOULEVARD ROOM

Chairman: A. B. Pardee

1:30 **1153.** Nature of the noninfectious particles produced by poliovirus infected tissue cultures treated with proflavine. F. L. SCHAFFER (intr. by C. E. SCHWERDT). *Univ. of California.*

1:45 **1154.** Amino acid composition of bacteriophage components. M. L. COVAL,* V. MØLLER* AND H. VAN VUNAKIS. *Brandeis Univ.*

2:00 **1155.** Head structure of bacteriophage T2. L. M. KOZLOFF, D. J. CUMMINGS* AND M. LUTE.* *Univ. of Chicago.*

2:15 **1156.** Bacteriophage P1 induction by thymine deprivation. N. E. MELECHEN AND P. D. SKAAR (intr. by M. WEBER). *St. Louis Univ. and Montana State Coll.*

2:30 **1157.** Direct action of the gene in enzyme synthesis. M. RILEY,* A. B. PARDEE, F. JACOB* AND J. MONOD.* *Univ. of Calif. and Inst. Pasteur.*

2:45 **1158.** Biologic activity of RNA in T2 infection. E. VOLKIN. *Oak Ridge Natl. Lab.*

3:00 **1159.** Composition of metabolically active RNA in phage infected bacteria. L. ASTRACHAN (intr. by W. E. COHN). *Oak Ridge Natl. Lab.*

3:15 **1160.** Characterization of ribonucleic acid (RNA) synthesized in phage infected *E. coli*. M. NOMURA,* B. D. HALL* AND S. SPIEGELMAN. *Univ. of Illinois.* (Physiol.)

3:30 **1161.** Reversible inactivation of infectious RNA by ribonuclease. H. FRAENKEL-CONRAT AND B. SINGER. *Univ. of California.*

3:45 **1162.** Formation of T2 phage and dCMP-hydroxymethylase by preparations derived from spheroplasts. K. EBISUZAKI, E. A. FIGUEIREDO, S. SCHLESINGER AND G. R. GREENBERG. *Univ. of Michigan.*

4:00 **1163.** Relationship between the time of synthesis of virus protein and virus nucleic acid in poliovirus infected HeLa cells. L. LEVINTOW AND J. E. DARNELL, JR.* *Natl. Insts. of Health.*

Tumors

MON. P.M.—BLACKSTONE, HUBBARD ROOM

Chairman: J. A. Miller

1:30 **1164.** Metabolites of carcinogenic aromatic amines and azo dyes as metal ion complexing agents. J. H. WEISBURGER, P. H. GRANTHAM* AND E. K. WEISBURGER.* *Natl. Insts. of Health.*

1:45 **1165.** Effect of azo-dye carcinogenesis upon 5-hydroxytryptamine (serotonin) deaminase activity of rat liver. D. E. KIZER AND S. K. CHAN (intr. by S. H. WENDER). *Samuel R. Noble Fndn.*

2:00 **1166.** Selective alteration of liver mitochondria caused by hepatic carcinogens. J. C. ARCOS, D. ZICKAFOOSE AND R. D. WARREN (intr. by G. K. DAVIS). *Univ. of Florida.*

2:15 **1167.** Changes in hexokinase and dehydrogenases for glucose-6-phosphate and 6-phosphogluconate during carcinogenesis in the hamster cheek pouch. D. B. MCN. SCOTT, A. L. MORRIS,* A. B. REISKIN* AND A. M. PAKOSKEY.* *Univ. of Pennsylvania.*

2:30 **1168.** Effects of x-irradiation on the metabolism of Ehrlich ascites carcinoma cells. E. L. COE,* E. N. GARCIA* AND R. W. MCKEE. *Univ. of California.*

2:45 **1169.** Abolition of glycolysis in mouse tumor cells by a complement-dependent cytotoxic system of normal serum. M. W. WOODS, M. LANDY,* J. G. MICHAEL,* R.-J. TRAPANI,* B. ACHINSTEIN* AND M. J. SHEAR. *Natl. Insts. of Health.*

3:00 **1170.** Interaction of chloroquine mustard with ascites tumor cells. R. J. RUTMAN, W. J. STEELE AND C. C. PRICE. *Univ. of Pennsylvania.*

3:15 **1171.** Comparative antitumor activity of the diazomycins. J. J. OLESON, A. R. REITH,* R. S. THIE,* K. J. MJOS* AND L. A. CALDERELLA.* *Pfizer and Co.*

3:30 **1172.** Inhibition of Ehrlich mouse ascites tumor growth by cordycepin. N. M. KREDICH, D. V. JAGGER AND A. J. GUARINO (intr. by A. A. CHRISTMAN). *Univ. of Michigan.*

3:45 **1173.** Destruction of Ehrlich ascites tumor cells by heparin in vitro. N. BAKER* AND M. FIELDS. *UCLA.*

Tuesday Morning, April 12, 9:00 a.m.

Electron Transport II

TUES. A.M.—CONRAD HILTON, GRAND BALLROOM

Chairman: A. Nason

9:00 **1174.** Thyroxine stimulation of DPNH oxidation in rat uterus. A. T. BEVER, C. M. SOKATCH AND J. H. ANGLIN (intr. by A. C. KURTZ). *Univ. of Oklahoma.*

9:15 **1175.** Effects of ions on the DPNH oxidase of plant mitochondria. D. P. HACKETT. *Univ. of California.*

9:30 **1176.** Properties of cauliflower mitochondria. W. D. BONNER, JR. AND T. ITO (intr. by D. R. GODDARD). *Univ. of Pennsylvania.*

9:45 **1177.** DPNH dehydrogenase(s) from extracts of venom digested heart muscle particles. T. E. KING AND R. L. HOWARD. *Oregon State Coll.*

10:00 **1178.** Site of action of a succinoxidase inhibitor from *Hydra*. E. S. KLINE* AND V. S. WARAVDEKAR. *Armed Forces Inst. of Pathol.* (Pharmacol.)

10:15 **1179.** Succinic and DPNH oxidases of *Ascaris lumbricoides*. E. KMETEC* AND E. BUEDING. *Louisiana State Univ.*

10:30 **1180.** A microsomal TPNH-neotetrazolium diaphorase. C. H. WILLIAMS, JR.* AND H. KAMIN. *Duke Univ.*

10:45 **1181.** Tetrazolium reduction by mitochondrial preparations; participation of Coenzyme *Q*. A. L. SMITH AND R. L. LESTER (intr. by L. J. TEPLY). *Univ. of Wisconsin.*

11:00 **1182.** Direct spectrophotometric assays of ubiquinone-Coenzyme *Q* in mitochondria. B. CHANCE. *Univ. of Pennsylvania.*

11:15 **1183.** DPNH-cytochrome *c* reductase. Y. HATEFI, A. G. HAAVIK, P. JURTSHUK AND B. BOVEE (intr. by J. D. FERRY). *Univ. of Wisconsin.*

11:30 **1184.** Role of 'soluble lipid' preparations in submitochondrial enzyme systems. S. FLEISCHER AND H. KLOUWEN (intr. by F. SKOOG). *Univ. of Wisconsin.*

11:45 **1185.** Properties of a soluble succinic-Coenzyme *Q* reductase isolated from beef heart mitochondria. K. A. DOEG* AND D. M. ZIEGLER. *Univ. of Wisconsin.*

12:00 **1186.** A particle with succinic-cytochrome *c* reductase activity. R. K. BURKHARD AND D. E. GREEN. *Univ. of Wisconsin.*

Active Transport

TUES. A.M.—CONRAD HILTON, NORMANDIE LOUNGE

Chairman: B. L. Horecker

9:00 **1187.** 6-Deoxy-6-fluoroglucose and Ehrlich ascites cells. C. J. STEWART* AND A. N. WICK. *San Diego State Coll.*

9:15 **1188.** A common pathway for sugar transport by the intestine. C. R. JORGENSEN,* B. R. LANDAU* AND T. H. WILSON. *Harvard Univ.*

9:30 **1189.** Transport of galactose in *E. coli*. M. J. OSBORN AND W. L. MCLELLAN, JR. (intr. by A. W. BERNHEIMER). *New York Univ.* (Immunol.)

9:45 **1190.** Stimulation of the stereospecific sugar transport system of muscle by uncouplers and SH-inhibitors. T. KONO* AND S. P. COLOWICK. *Vanderbilt Univ.*

10:00 **1191.** 'Downhill' transport of amino acids, fatty acids and sugars into bacterial protoplasts and the role of glycolysis and K^+ ions. A. ABRAMS, G. YAMASAKI,* J. REDMAN* AND C. G. MACKENZIE. *Univ. of Colorado.*

10:15 **1192.** Uptake of amino acids by 'ghosts' of mutant strains of *E. coli*. H. RONALD KABACK (intr. by J. WITTENBURG). *Albert Einstein Coll. of Med.*

10:30 **1193.** Dependence of amino acid uptake in *L. arabinosus* on osmotic factors. J. T. HOLDEN. *City of Hope Med. Ctr.*

10:45 **1194.** Release of amino acids from the brain. A. LAJTHA AND J. TOTH.* *Columbia Univ.*

11:00 **1195.** Amino acid concentration stimulated by estrogen sulfates. H. N. CHRISTENSEN, T. R. RIGGS AND J. C. JONES.* *Univ. of Michigan.*

11:15 **1196.** Rate of growth hormone stimulation of amino acid uptake by rat tissues in vivo. T. R. RIGGS AND L. M. WALKER.* *Univ. of Michigan.*

11:30 **1197.** Phosphatidic acid as a carrier for Na^+ ions. L. E. HOKIN AND M. R. HOKIN. *Univ. of Wisconsin.*

11:45 **1198.** Nicotinamide and nicotinic acid uptake by ascites tumor cells. L. S. DIETRICH. *Univ. of Miami.*

12:00 **1199.** Uptake of acetate by rat diaphragm. E. C. FOULKES AND C. M. PAINE.* *Univ. of Cincinnati.*

Nucleic Acids I

TUES. A.M.—CONRAD HILTON, UPPER TOWER

Chairman: L. Heppel

9:00 **1200.** Pool sizes of acid-soluble nucleotides of *E. coli* as a function of growth rate. J. S. FRANZEN AND S. B. BINKLEY. *Univ. of Illinois.*

9:15 **1201.** Incorporation of radioactive DNA into Ehrlich ascites cells. M. R. CHORAZY, H. H. BALDWIN AND R. K. BOUTWELL (intr. by E. C. MILLER). *Univ. of Wisconsin.*

9:30 **1202.** Incorporation of nucleic acid and protein precursors into ascites tumor cells. E. R. M. KAY. *Univ. of Rochester.*

9:45 **1203.** Utilization of HeLa cell components as precursors for the synthesis of animal virus nucleic acid. N. P. SALZMAN AND E. D. SEBRING (intr. by H. D. BAERNSTEIN). *Natl. Insts. of Health.*

10:00 **1204.** Consecutive digestion of DNA by two DNAses. S. VANECKO* AND M. LASKOWSKI. *Marquette Univ.*

10:15 **1205.** Studies on a DNA phosphodiesterase from *E. coli*. I. R. LEHMAN (intr. by R. L. BALDWIN). *Stanford Univ.*

10:30 **1206.** Interaction between ribonuclease A and 2′-cytidylic acid. J. P. HUMMEL, C. A. NELSON* AND D. VER PLOEG.* *State Univ. of Iowa.*

10:45 **1207.** Action of ribonuclease on polyribophosphate and studies on a new polysugarphosphate. E. ROSENBERG* AND S. ZAMENHOF. *Columbia Univ.*

11:00 **1208.** Quantitative and qualitative differences among thymic ribonucleases. P. P. WEYMOUTH (intr. by J. H. PAZUR). *Univ. of Nebraska.*

11:15 **1209.** Purification, properties and mechanism of action of ribonuclease from *E. coli* ribonucleoprotein particles. P. F. SPAHR AND B. R. HOLLINGWORTH. *Harvard Univ.*

11:30 **1210.** Action of micrococcal nuclease on oligonucleotides. W. ROBERTS* AND C. DEKKER. *Univ. of California.*

11:45 **1211.** Phosphodiesterase activities of adrenal glands.

K. ARAI AND L. L. SALOMON (intr. by A. A. ORMSBY). *Univ. of Texas.*

Enzymes II

TUES. A.M.—CONRAD HILTON, BEVERLY ROOM

Chairman: P. P. Cohen

9:00 **1212.** A new glutathione-disulfide transhydrogenase. J. F. THOMPSON,* S. BLACK AND B. HUDSON.* *Natl. Institutes of Health.*

9:15 **1213.** Properties and mechanism of action of β-thiolpyruvate transsulfurase. D. W. FANSHIER* AND E. KUN. *Univ. of California.*

9:30 **1214.** Conversion of L-serine to keto acids. S. K. FELLNER AND K. C. LEIBMAN (intr. by T. H. MAREN). *Univ. of Florida.* (Pharmacol.)

9:45 **1215.** Crystalline Δ^5-3-ketosteroid isomerase. F. S. KAWAHARA* AND P. TALALAY. *Univ. of Chicago.*

10:00 **1216.** Purification of glutamic-oxaloacetate transaminase from skin. G. T. PASSANANTI* AND W. D. BLOCK. *Univ. of Michigan.*

10:15 **1217.** Inhibition of human heart glutamate oxaloacetate transaminase. F. W. BARNES, JR., C. C. BURCH* AND S. D. J. YEH.* *Johns Hopkins Univ.*

10:30 **1218.** Reaction of alanine and hydroxyaspartate with glutamate-aspartate transaminase. W. T. JENKINS. *Univ. of California.*

10:45 **1219.** Excretion of glutamic-oxaloacetic transaminase in bile of rats. R. M. HILL, B. NELSON* AND D. D. SOWL.* *Univ. of Colorado.*

11:00 **1220.** Separation of three transaminases from dog liver. G. A. FLEISHER. *Mayo Clinic.*

11:15 **1221.** Chromatographic patterns of enzymes in different rat tissues. B. W. MOORE (intr. by E. RONZONI). *Washington Univ.*

11:30 **1222.** Differences between the lactic dehydrogenases isolated from human heart and liver. J. S. NISSELBAUM* AND O. BODANSKY. *Sloan-Kettering Inst.*

11:45 **1223.** Characterization of an ascorbase present in the fruit of the *Malpighia punicifolia* L. CONRADO F. ASENJO, A. PENALOZA* AND D. P. MEDINA. *Univ. of Puerto Rico.*

Biochemical Genetics; Induced Enzymes

TUES. A.M.—CONRAD HILTON, WILLIFORD ROOM

Chairman: N. H. Horowitz

9:00 **1224.** Quantitative study of urinary mucopolysaccharide excretion in gargoylism. M. FRIED AND T. N. CAMPBELL (intr. by H. J. TEAS). *Univ. of Florida.*

9:15 **1225.** Crystallization of human muscle phosphorylase. A. A. YUNIS, E. H. FISCHER AND E. G. KREBS. *Univ. of Washington.*

9:30 **1226.** Immunological study of human muscle lacking phosphorylase. P. W. ROBBINS. *Rockefeller Inst.*

9:45 **1227.** Biochemical basis of hereditary galactose sensitivity. G. J. SPYRIDES* AND H. M. KALCKAR. *Johns Hopkins Univ.*

10:00 **1228.** Purine nucleotide pyrophosphorylases of *Salmonella typhimurium*. G. P. KALLE,* J. S. GOTS AND C. ABRAMSON.* *Univ. of Pennsylvania.*

10:15 **1229.** Stabilization and inactivation of glucose-6-phosphate dehydrogenase of normal and mutant subjects. P. A. MARKS AND A. SZEINBERG.* *Columbia Univ.*

10:30 **1230.** Erythrocyte diaphorase: enzymatic defect of hereditary methemoglobinemia. E. M. SCOTT. *Arctic Health Res. Ctr.*

10:45 **1231.** Phenylalanine turnover in phenylketonuria. H.-D. GRÜMER, H. KOBLET AND C. WOODARD (intr. by E. H. FRIEDEN). *Boston Disp. and Pineland Hosp.*

11:00 **1232.** Studies on a D-amino acid oxidase deficient mutant of *Neurospora*. N. H. HOROWITZ, E. OHNISHI* AND Y. WATANABE.* *California Inst. of Technol.*

11:15 **1233.** Correlation of lysozyme resistance to carotenogenesis in *Micrococcus lysodeikticus*. A. L. N. PRASAD* AND G. LITWACK. *Rutgers Univ.*

11:30 **1234.** Induction of two similar enzymes by one inducer. A test case for shared genetic information. M. W. NIRENBERG (intr. by W. B. JAKOBY). *Natl. Insts. of Health.*

11:45 **1235.** Inducibility of penicillinase in *Staphylococcus aureus*. H. G. STEINMAN. *Natl. Insts. of Health.*

12:00 **1236.** H_2O_2-induced catalase synthesis in *Rhodopseudomonas spheroides*. R. K. CLAYTON (intr. by S. F. CARSON). *Oak Ridge Natl. Lab.*

Proteins I

TUES. A.M.—CONRAD HILTON, BOULEVARD ROOM

Chairman: J. T. Edsall

9:00 **1237.** Physicochemical properties of creatine kinase. W. A. DACOSTA,* J. R. SPARKS* AND F. FRIEDBERG. *Howard Univ.*

9:15 **1238.** Physical-chemical properties of sperm whale metmyoglobin. F. R. N. GURD AND E. BRESLOW.* *Cornell Univ.*

9:30 **1239.** Solvent effects on ultraviolet spectra of tyrosyl residues. M. LASKOWSKI, JR., R. H. CRAMER,* T. T. HERSKOVITS* AND C. -C. WANG.* *Purdue Univ.*

9:45 **1240.** Spectrophotometric titration studies of myosin and the meromyosins. A. STRACHER (intr. by R. R. BECKER). *State Univ. of New York.*

10:00 **1241.** Degradation and reactivity of myosin in urea solutions. D. B. WETLAUFER. *Harvard Univ.*

10:15 **1242.** Evidence of intramolecular stabilization of the collagen fold. W. F. HARRINGTON AND P. H. VON HIPPEL.* *Natl. Insts. of Health and Dartmouth Coll.*

10:30 **1243.** Nuclear magnetic resonance studies of proteins. A. KOWALSKY* AND P. D. BOYER. *Univ. of Minnesota.*

10:45 **1244.** Configurational changes of trypsinogen in alkaline solution. L. B. SMILLIE AND C. M. KAY (intr. by J. TUBA). *Univ. of Alberta.*

11:00 **1245.** Denaturation of thyroglobulin. H. EDELHOCH AND H. METZGER. *Natl. Insts. of Health.*

11:15 **1246.** Molecular transformation of macroglobulins. H. F. DEUTSCH AND F. C. GREENWOOD.* *Univ. of Wisconsin.*

11:30 **1247.** Optical rotatory dispersion studies of albumin-vasoflavine complexes. J. J. BETHEIL AND P. M. GALLOP (intr. by S. ENGLARD). *Albert Einstein Med. Coll.*

11:45 **1248.** Physical and chemical studies on the proteins of yeast ribosomes. F. H. YIN* AND R. M. BOCK. *Univ. of Wisconsin.*

Catecholamines

TUES. A.M.—CONGRESS, FLORENTINE ROOM

Chairman: S. Udenfriend

9:00 **1249.** Estimations of urinary mandelic acid derivatives and catecholamines in the diagnosis of pheochromocytoma.

F. W. SUNDERMAN, JR.,* P. D. CLEVELAND* AND F. W. SUNDERMAN. *U.S. Naval Med. Sch. and Jefferson Med. Coll.*

9:15 **1250.** Effect of catecholamino acids on catecholamine (CA) content of rat organs. T. L. SOURKES AND G. F. MURPHY. *McGill Univ.*

9:30 **1251.** Formation and metabolism of N-acetylnormetanephrine in rats treated with iproniazid. A. SMITH* AND S. WORTIS. *New York Univ.* (Physiol.)

9:45 **1252.** Conversion of dopamine to norepinephrine and to 3-methoxynorepinephrine in adrenalectomized rats. A. J. FRIEDHOFF, M. GOLDSTEIN, C. SIMMONS AND S. B. WORTIS (intr. by E. J. SIMON). *New York Univ.*

10:00 **1253.** Conversion of hydroxytyramine to noradrenaline by banana homogenates. W. J. SMITH AND N. KIRSHNER (intr. by W. E. DETURK). *Duke Univ.* (Pharmacol.)

10:15 **1254.** An unidentified acidic catabolite of DL-noradrenaline in the human. L. ROSEN* AND MCC. GOODALL. *Univ. of Tennessee.* (Physiol.)

10:30 **1255.** Metabolic fate of epinephrine in the rat. I. J. KOPIN* AND J. AXELROD. *Natl. Insts. of Health.*

10:45 **1256.** Identification of octopamine in animals treated with monoamine oxidase inhibitors. Y. KAKIMOTO* AND M. D. ARMSTRONG. *Fels Research Inst.*

11:00 **1257.** L-Amino acid decarboxylase activity in mammalian tissues and its inhibition by α-methyl dopa. S. UDENFRIEND, W. M. LOVENBERG* AND H. WEISSBACH.* *Natl. Insts. of Health.*

11:15 **1258.** Mammalian orthotyrosine decarboxylase. V. E. DAVIS* AND J. AWAPARA. *Rice Inst.*

Steroids II

TUES. A.M.—BLACKSTONE, HUBBARD ROOM

Chairman: S. Lieberman

9:00 **1259.** Body cholesterol metabolism in man. A. V. CHOBANIN AND W. HOLLANDER (intr. by F. M. SINEX). *Boston Univ.*

9:15 **1260.** Effects of bile acids on cholesterol metabolism in the mouse. W. T. BEHER, G. D. BAKER* AND W. L. ANTHONY.* *Edsel B. Ford Inst.*

9:30 **1261.** Effect of castration and of estrogens on oxidation of cholesterol-26-C^{14} by male rat liver mitochondria. D. KRITCHEVSKY, M. W. WHITEHOUSE* AND E. STAPLE. *Univ. of Pennsylvania.*

9:45 **1262.** Oxidation of trihydroxycoprostanic acid-26-C^{14} to $C^{14}O_2$ *in vitro*. T. BRIGGS* AND E. STAPLE. *Univ. of Pennsylvania.*

10:00 **1263.** Metabolism of cholanic-24-C^{14} acid in the rat. P. D. RAY,* R. L. RATLIFF,* L. W. WELLS* AND S. A. THAYER. *St. Louis Univ.*

10:15 **1264.** Metabolism of α-muricholic acid in the rat. G. D. CHERAYIL,* R. G. BELL* AND W. H. ELLIOTT. *St. Louis Univ.*

10:30 **1265.** Metabolism of chenodeoxycholic acid-24-C^{14} in surgically jaundiced mice. V. A. ZIBOH* AND S. L. HSIA. *St. Louis Univ.*

10:45 **1266.** Influence of dietary minerals in bile acid production in the rat. M.-W. YIN AND J. W. AHLBERG (intr. by P. A. KATZMAN). *St. Louis Univ.*

11:00 **1267.** Metabolism of testosterone-4-C^{14} in a steer. R. P. MARTIN AND F. X. GASSNER (intr. by F. A. CAJORI). *Colorado State Univ.*

11:15 **1268.** A soluble enzyme system from human placental microsomes converting testosterone-4-C^{14} to C^{14}-estradiol-17β. N. HOLLANDER* AND V. P. HOLLANDER. *Univ. of Virginia.*

11:30 **1269.** Metabolism of 19-nortestosterone in vitro. D. KUPFER AND E. FORCHIELLI (intr. by M. HAYANO). *Worcester Fndn.*

11:45 **1270.** Microbiological hydroxylation (C-16) of estrone, estradiol-3, 17β and estradiol-3, 17α. B. F. STIMMEL, T. E. BUCKNELL* AND V. NOTCHEV.* *Rees-Stealy Clinic Res. Fndn.*

Tuesday Afternoon, April 12, 1:30 p.m.

Lipid Metabolism I

TUES. P.M.—CONRAD HILTON, GRAND BALLROOM

Chairman: S. Gurin

1:30 **1271.** Glycolysis as a regulator of fatty acid and cholesterol synthesis. E. C. LAYNE (intr. by M. ANDERSCH). *Univ. of Maryland.*

1:45 **1272.** Biosynthesis of lactobacillic acid. T.-Y. LIU* AND L. HOFMANN. *Univ. of Pittsburgh.*

2:00 **1273.** Propionate incorporation into a unique branched fatty acid. J. W. CORCORAN, T. KANEDA AND J. C. BUTTE (intr. by H. SABLE). *Western Reserve Univ.*

2:15 **1274.** A primary defect in fatty acid biosynthesis in liver of the alloxan diabetic rat. D. M. GIBSON, D. D. HUBBARD* AND W. C. LOVE.* *Indiana Univ.*

2:30 **1275.** Synthesis of fatty acids by particulate preparations from avocado mesocarp. J. B. MUDD* AND P. K. STUMPF. *Univ. of California.*

2:45 **1276.** Biosynthesis of fatty acids. S. J. WAKIL. *Duke Univ.*

3:00 **1277.** Condensation of malonyl CoA with acetyl or butyryl CoA. J. W. PORTER, E. A. STEBERL* AND G. W. WASSON. *Univ. of Wisconsin.*

3:15 **1278.** Decarboxylation of malonyl CoA dependent upon thiolesters CoA. P. R. VAGELOS AND A. W. ALBERTS (intr. by B. N. AMES). *Natl. Insts. of Health.*

3:30 **1279.** Source of hydrogen in fatty acid synthesis. J. M. LOWENSTEIN, J. ROBERTS* AND S. CORDES.* *Brandeis Univ.*

3:45 **1280.** Pyruvate carboxylase. M. F. UTTER AND D. B. KEECH.* *Western Reserve Univ.*

4:00 **1281.** Effect of pseudovitamin B_{12} on the enzymatic carboxylation of acetyl CoA. R. O. BRADY AND J. V. FORMICA.* *Natl. Institutes of Health.*

4:15 **1282.** Role of vitamin B_{12} coenzyme and biotin in propionate metabolism. E. R. STADTMAN, P. OVERATH,* H. EGGERER* AND F. LYNEN.* *Inst. fur Zellchemie, Munchen.*

Enzymes III

TUES. P.M.—CONRAD HILTON, NORMANDIE LOUNGE

Chairman: H. A. Lardy

1:30 **1283.** In vitro inhibition of phosphoglucomutase by tocopherol. H. ROSENKRANTZ AND R. O. LAFERTE.* *Worcester Fndn.*

1:45 **1284.** Mechanism of enzymatic isomerization of a primary to secondary alcohol coupled to phosphate elimination. M. FLAVIN AND C. SLAUGHTER.* *Natl. Insts. of Health.*

2:00 **1285.** Activity of acid prostatic phosphomonoesterase on phosphoric esters without functional substituents. G. BARTSCH,* S. J. THANNHAUSER AND G. SCHMIDT. *Tufts Univ.*

2:15 **1286.** Purification of a myokinase from hog liver. M. CHIGA (intr. by L. T. SAMUELS). *Univ. of Utah.* (Nutr.)

2:30 **1287.** Adenine nucleotide exchange properties of myokinase. B. C. PRESSMAN. *Univ. of Kansas.*

2:45 **1288.** Phosphoryltransfer with phosphocreatine (PC) or phosphoenolpyruvate (PEP) and adenosinemonophosphate (AMP). J. MOLNAR* AND L. LORAND. *Northwestern Univ.*

3:00 **1289.** Studies on ATP-transphosphorylases. T. A. MAHOWALD AND S. A. KUBY. *Univ. of Wisconsin.*

3:15 **1290.** Effect of anions and of pH on ATP-creatine transphosphorylase activity. L. NODA AND T. NIHEI.* *Dartmouth Coll.*

3:30 **1291.** Arsenate activation of phosphoglyceric acid mutase. J. C. TOWNE (intr. by N. S. RADIN). *Northwestern Univ.*

3:45 **1292.** Properties and mechanism of action of various aldolases. O. C. RICHARDS* AND W. J. RUTTER. *Univ. of Illinois.*

4:00 **1293.** Enzymatic properties of carboxypeptidase-degraded aldolase. A. H. MEHLER AND B. BLOOM. *Natl. Insts. of Health.*

4:15 **1294.** Inactivation of carbonic anhydrase by proteolytic enzymes. J. B. GILBERT. *Univ. of Texas.*

Carbohydrates II

TUES. P.M.—CONRAD HILTON, UPPER TOWER

Chairman: D. D. Dziewiatowski

1:30 **1295.** Chondroitinase from *P. vulgaris*. H. I. NAKADA, J. B. WOLFE AND S. GARCIA.* *UCLA.*

1:45 **1296.** Enzymatic production of a keto acid from hyaluronate. A. LINKER AND P. SAMPSON.* *Columbia Univ.*

2:00 **1297.** Partial chemical degradation of the cell walls of *Lactobacillus plantarum* and *Streptococcus faecalis*. M. IKAWA AND E. E. SNELL. *Univ. of California.*

2:15 **1298.** Enzymatic hydrolysis of keratosulfate. O. ROSEN,* P. HOFFMAN AND K. MEYER. *Columbia Univ.*

2:30 **1299.** Structure of keratosulfate. S. HIRANO,* P. HOFFMAN AND K. MEYER. *Columbia Univ.*

2:45 **1300.** Sodium chondroitin sulfate-protein complexes of cartilage III: complexes from shark. M. B. MATHEWS. *Univ. of Chicago.*

3:00 **1301.** Metabolism of chondroitin sulfate b. E. A. DAVIDSON. *Duke Univ.*

3:15 **1302.** Acceleration of osteogenesis by chondroitin sulfate-treated demineralized bone. M. BURGER,* B. S. SHERMAN* AND A. E. SOBEL. *Jewish Hosp. of Brooklyn.*

3:30 **1303.** Site of capsule (hyaluronic acid) synthesis in group A streptococcus. A. MARKOVITZ* AND A. DORFMAN. *Univ. of Chicago.*

3:45 **1304.** Fractionation of hyaluronic acid from the bovine vitreous body. T. LAURENT, A. PIETRUSZKIEWICZ AND M. RYAN (intr. by L. VARGA). *Massachusetts Eye and Ear Inf.*

4:00 **1305.** Method for separation of mucopolysaccharides from rat skin. S. SCHILLER AND G. SLOVER.* *Univ. of Chicago.*

4:15 **1306.** Molecular size of hyaluronic acid using periodate oxidation. J. C. MELBY, M. ST. CYR, A. UNRAU AND F. SMITH (intr. by J. S. DINNING). *Univ. of Arkansas Med. Ctr. and Univ. of Minnesota.*

Nucleic Acids II

TUES. P.M.—CONRAD HILTON, BEVERLY ROOM

Chairman: W. E. Cohn

1:30 **1307.** Direct synthesis of purines from amino acids. J. ORÓ AND A. P. KIMBALL (intr. by R. A. SEIBERT). *Univ. of Houston.* (Pharmacol.)

1:45 **1308.** Peptide-nucleotide associations in rat liver. C. WEINSTEIN,* S. SEIFTER AND J. I. BERKMAN.* *Albert Einstein Coll. of Med.*

2:00 **1309.** Isolation of nucleotides with amino acid components from liver. D. R. WILKEN* AND R. G. HANSEN. *Michigan State Univ.*

2:15 **1310.** Syntheses of 2′(3′)-DL-phenylalanyl esters of ribonucleosides. D. H. RAMMLER* AND H. G. KHORANA. *Univ. of British Columbia.*

2:30 **1311.** Molar base ratios of normal tissue, tumor and tissue subfraction RNA. S. KIT. *Univ. of Texas.*

2:45 **1312.** Proteases of calf thymus nuclei. N. K. SARKAR* AND A. L. DOUNCE. *Univ. of Rochester.*

3:00 **1313.** Reaction of purines, pyrimidines and DNA with formaldehyde. S. LEVINE,* L. GROSSMAN AND M. SIMON.* *Brandeis Univ.*

3:15 **1314.** Reaction of DNA with thiolating reagents. E. L. DUGGAN, S. L. BUNCH* AND W. D. MORIARTY.* *Univ. of California.*

3:30 **1315.** Denaturation of pea microsomal RNA and calf thymus DNA in formamide and dimethylsulfoxide. G. K. HELMKAMP* AND P. P. TS'O. *California Inst. of Technol.*

Protein Biosynthesis I

TUES. P.M.—CONRAD HILTON, WILLIFORD ROOM

Chairman: P. Zamecnik

1:30 **1316.** Amino acid and RNA metabolism in chloramphenicol treated *L. casei*. C. E. CARTER. *Yale Univ.*

1:45 **1317.** Comparison of effects of chloramphenicol and 8-azaguanine on biosynthesis in *Bacillus cereus*. H. G. MANDEL AND R. L. ALTMAN.* *George Washington Univ.*

2:00 **1318.** Enzyme synthesis in *E. coli* treated with 5-fluorouracil. J. HOROWITZ,* J. J. SAUKKONEN* AND E. CHARGAFF. *Columbia Univ.*

2:15 **1319.** Protein synthesis with ribonucleoprotein particles from pea seedlings. I. D. RAACKE (intr. by A. D. MCLAREN). *Kaiser Fndn. Res. Inst.*

2:30 **1320.** Incorporation of amino acids in protein by cell-free preparations from maize endosperm and germinating seedlings. R. J. MANS AND R. RABSON (intr. by N. G. ANDERSON). *Oak Ridge Natl. Lab.* (Physiol.)

2:45 **1321.** Introduction of amino acids into protein of particulate preparations from *Azotobacter vinelandii*. D. P. BURMA AND M. CHAKRAVORTY (intr. by P. KAESBERG). *Bose Inst., Calcutta.*

3:00 **1322.** Amino acid incorporation into protein by extracts of *E. coli*. M. LAMBORG (intr. by R. B. LOFTFIELD). *Harvard Univ.*

3:15 **1323.** Amino acid incorporation into microsomal proteins of normal and malignant cells. H. T. SHIGEURA AND C. N. GORDON.* *Merck Inst.*

3:30 **1324.** Stages in hemoglobin synthesis in a cell-free system. J. BISHOP,* E. ALLEN,* J. LEAHY,* A. MORRIS* AND R. SCHWEET. *City of Hope Med. Ctr.*

3:45 **1325.** Factors determining the specificity of hemoglobin synthesized in a cell-free system. H. LAMFROM (intr. by H. BORSOOK). *California Inst. of Technol.*

4:00 **1326.** Kinetics of catalase synthesis and destruction in vivo. V. E. PRICE AND M. RECHCIGL, JR.* *Natl. Insts. of Health.*

4:15 **1327.** Kinetics of protein synthesis in growing yeast. H. K. KIHARA, R. J. YOUNG AND H. O. HALVORSON.* *Univ. of Wisconsin.*

Oxidative Enzymes I

TUES. P.M.—CONRAD HILTON, BOULEVARD ROOM

Chairman: P. Handler

1:30 **1328.** Formate metabolism of a parasitic fungus (*Tilletia contraversa*). E. B. VAISEY,* V. H. CHELDELIN AND R. W. NEWBURGH. *Oregon State Coll.*

1:45 **1329.** Amino acid oxidase-catalyzed dehydrogenation of leucine. L. TUAZON,* F. R. DUKE* AND D. E. METZLER. *Iowa State Univ.*

2:00 **1330.** Chloroperoxidase: a component of the β-ketoadipate chlorinase system. P. SHAW AND J. BECKWITH (intr. by K. BLOCH). *Harvard Univ.*

2:15 **1331.** Mechanism of peroxidation of uric acids by hematin proteins. R. R. HOWELL* AND J. B. WYNGAARDEN. *Duke Univ.*

2:30 **1332.** Identification, by electron paramagnetic resonance spectroscopy, of free radicals generated from substrates by peroxidase. I. YAMAZAKI,* H. S. MASON AND L. PIETTE. *Univ. of Oregon and Varian Assoc., Palo Alto.*

2:45 **1333.** Free radicals associated with succinic dehydrogenase activity. T. C. HOLLOCHER* AND B. COMMONER. *Washington Univ.*

3:00 **1334.** Free radical formation by oxidative enzymes. I. FRIDOVICH AND P. HANDLER. *Duke Univ.*

3:15 **1335.** Sulfite activated oxidation of DPNH by peroxidase. S. J. KLEBANOFF. *Rockefeller Inst.*

3:30 **1336.** Formation of semiquinone by the action of laccase. T. NAKAMURA (intr. by H. M. VARS). *Univ. of Pennsylvania.*

3:45 **1337.** Oxidation of DPNH by hypoxanthine dehydrogenase from avian kidney. E. J. LANDON (intr. by S. COHEN). *Vanderbilt Univ.*

4:00 **1338.** Inhibition of xanthine oxidase by kinetin and kinetin analogues. T. R. HENDERSON (intr. by J. W. FOSTER). *Univ. of Texas.*

4:15 **1339.** Nonenzymic interactions of serotonin and other indoles with DPN. S. G. A. ALIVISATOS, G. A. MOURKIDES* AND A. JIBRIL.* *Chicago Med. Sch.*

Proteins II

TUES. P.M.—BLACKSTONE, MAYFAIR ROOM

Chairman: J. L. Irvin

1:30 **1340.** Cryoprecipitability of cryoglobulins. D. A. RIGAS AND R. D. KOLER.* *Univ. of Oregon.*

1:45 **1341.** Electrophoresis of serum albumin in acidic media. J. R. CANN (intr. by J. B. MACKENZIE). *Univ. of Colorado.*

2:00 **1342.** Electrophoretic behavior of human serum albumin at acid pH. J. HARRIS AND S. GOODYEAR (intr. by J. A. MUNTZ). *Albany Med. Coll.*

2:15 **1343.** Electrophoresis of the reaction products of insulin in urea solution. F. BISCHOFF AND A. K. BAKHTIAR.* *Santa Barbara Cottage Hosp. Res. Inst.*

2:30 **1344.** Electrophoresis of calf thymus histones. C. MCCLURE* AND J. L. IRVIN. *Univ. of North Carolina.*

2:45 **1345.** Alterations of electrophoretic mobilities of serum proteins and lipoproteins by iodinized contrast media. H. KUTT AND F. MCDOWELL (intr. by L. F. CHAPMAN). *Bellevue Hosp.* (Physiol.).

3:00 **1346.** Electrophoretic separation of serum protein on cyanogum gel. S. RAYMOND AND D. SENESKY (intr. by J. G. REINHOLD). *Univ. of Pennsylvania.*

3:15 **1347.** Fractionation of the human Ba-α_2-glycoproteins by starch gel electrophoresis. K. SCHMID, W. BÜRGI* AND K. DUS.* *Harvard Univ.*

3:30 **1348.** Use of microporous membranes in forced-flow electrophoresis. M. BIER, P. TEITELBAUM,* N. DENIZ* AND I. BIER.* *Inst. of Appl. Biology.*

3:45 **1349.** Fractionation by dialysis; improved selectivity. J. GOLDSTEIN AND L. C. CRAIG. *Rockefeller Inst.*

4:00 **1350.** Applications of gel filtration in studies of protein-metal complexes. P. E. WILCOX AND J. LISOWSKI. *Univ. of Washington.*

Erythrocytes

TUES. P.M.—BLACKSTONE, HUBBARD ROOM

Chairman: S. Granick

1:30 **1351.** Studies of unbound amino acid distribution in plasma, erythrocytes and leukocytes of normal human subjects. R. H. MCMENAMY (intr. by J. L. ONCLEY). *Harvard Univ.*

1:45 **1352.** Effect of extracellular ATP on erythrocyte potassium transport. C. S. POTTER AND J. W. ROSEVEAR (intr. by H. L. MASON). *Mayo Clinic.*

2:00 **1353.** Relationship between glutathione content of rat erythrocytes and hemolysis by various agents in vitro. H. B. COLLIER AND C. C. TSEN.* *Univ. of Alberta.*

2:15 **1354.** Separation of erythrocyte enzymes from hemoglobin. M. A. HENNESSEY,* A. M. HAFFNER* AND B. W. GABRIO. *Univ. of Wash.*

2:30 **1355.** Erythrocyte delta aminolevulinic acid dehydrase: a sensitive index of hemoglobin synthesis. J. H. SACKS,* L. A. MOUNTER AND R. H. EGDAHL. *Med. Coll. of Virginia.* (Pathol.)

2:45 **1356.** Heme synthesis by duck erythrocytes as a function of age. J. R. KLEIN. *Brookhaven Natl. Lab.*

3:00 **1357.** Electromagnetophoresis of erythrocytes. W. B. DANDLIKER, W. P. MURPHY, JR.* AND J. W. KELLER, JR.* *Miami Heart Inst.*

3:15 **1358.** Magnesium porphyrins in chlorophyll biosynthesis. S. GRANICK. *Rockefeller Inst.*

3:30 **1359.** Formation and characterization of some new types of metalloporphyrin. S. SCHWARTZ, B. L. LOUDAS* AND H. L. DINSMORE.* *Univ. of Minnesota.*

3:45 **1360.** Metabolism of bis-(2-iodoethyl-I^{131}) deuteroporphyrin-H^3 (BID) in tumor bearing mice. K. I. ALTMAN AND K. SALOMON. *Univ. of Rochester.*

4:00 **1361.** Oxygen metabolism in hemoglobin breakdown to biliverdin. F. K. ANAN (intr. by E. S. WEST). *Univ. of Oregon.*

4:15 **1362.** Chemical basis of the Bohr effect. R. BENESCH AND R. E. BENESCH. *Marine Biol. Lab., Woods Hole.*

Biochemistry Society Business Meeting

TUESDAY, 4:30 P.M.—CONRAD HILTON, GRAND BALLROOM

Joint Session of the Federation

TUESDAY, 8:00 P.M.—CONRAD HILTON, GRAND BALLROOM

Future Annual Meetings

Dates of Federation Annual Meetings for the next three years are: 1961: April 10–14; 1962: April 16–20; 1963: April 15–19.

Placement Service

Exhibition Hall, fourth floor, Palmer House

Intersociety Sessions

See program, pages 426–443, for sessions on 'Atherosclerosis,' Blood Clotting,' 'Cytology,' 'Endocrinology', 'Gastroenterology', 'Muscle', 'Neuropharmacology and Tissue Culture', and for Intersociety symposia.

Tickets

Tickets for group breakfasts, luncheons and dinners; Society dinners; Smoker; and other Federation functions will be on sale in the registration area, Conrad Hilton Hotel.

Wednesday Morning, April 13, 9:00 a.m.

Nucleic Acids III

WED. A.M.—CONRAD HILTON, GRAND BALLROOM

Chairman: A. Kornberg

9:00 **1363.** Nutritional and endocrine influences on uracil incorporation in liver RNA. A. CANTAROW, K. E. PASCHKIS AND T. L. WILLIAMS.* *Jefferson Med. Coll.* (Physiol.).

9:15 **1364.** Mitochondrial formation of an RNA-like material. N. W. PENN (intr. by A. NOVIKOFF). *Albert Einstein Coll. of Med.*

9:30 **1365.** Incorporation of ribonucleotides and deoxyribonucleotides into fractions of calf thymus nuclei. J. S. KRAKOW AND H. O. KAMMEN (intr. by G. R. WYATT). *Yale Univ.*

9:45 **1366.** Deoxyribonucleic acid polymerase activity in extracts of Novikoff hepatoma tissue. N. B. FURLONG* AND A. C. GRIFFIN. *Univ. of Texas.*

10:00 **1367.** Primers for calf thymus polymerase. F. J. BOLLUM (intr. by C. W. CARR). *Oak Ridge Natl. Lab.*

10:15 **1368.** Replication of sequences in the enzymatic synthesis of DNA. J. JOSSE* AND A. KORNBERG. *Stanford Univ.*

10:30 **1369.** Enzymatic synthesis of a copolymer of deoxyadenylate and deoxythymidylate. C. M. RADDING,* J. ADLER* AND H. K. SCHACHMAN. *Stanford Univ.*

10:45 **1370.** Enzymatic synthesis of polynucleotides containing thiouridylic acid. P. LENGYEL AND R. W. CHAMBERS (intr. by S. OCHOA). *New York Univ.*

11:00 **1371.** Enzymatic incorporation of ATP and CTP into polynucleotides. M. EDMONDS* AND R. ABRAMS. *Montefiore Hosp.*

11:15 **1372.** Incorporation of ribonucleotides into RNA. M. ALEXANDER,* A. BRESLER,* J. FURTH* AND J. HURWITZ. *New York Univ.*

11:30 **1373.** Incorporation of ATP-C^{14} into polyribonucleotides. J. PREISS* AND P. BERG. *Stanford Univ.*

11:45 **1374.** Polynucleotide phosphorylase activators in ADP preparations. R. F. BEERS, JR. *Children's Hosp., Baltimore.*

12:00 **1375.** Evidence that 5′-nucleotides are the building blocks for biosynthesis of RNA in rat liver. T. D. PRICE, R. A. DARMSTADT, H. A. HINDS AND K. K. TSUBOI (intr. by B. WEISS). *Columbia Univ.*

Amino Acids I

WED. A.M.—CONRAD HILTON, NORMANDIE LOUNGE

Chairman: Osamu Hayaishi

9:00 **1376.** Gamma butyrobetaine esters on ammonia metabolism. E. A. HOSEIN (intr. by O. F. DENSTEDT). *McGill Univ.*

9:15 **1377.** Enzymatic synthesis of gamma-hydroxyglutamate from L-hydroxyproline. E. ADAMS AND A. GOLDSTONE. *St. Louis Univ.*

9:30 **1378.** Bacterial metabolism of lysine. D. R. RAO, G. THIND AND V. W. RODWELL (intr. by H. TARVER). *Univ. of California.*

9:45 **1379.** Metabolism of DL-pipecolic acid-2-C^{14} and related compounds. M. ROTHSTEIN AND D. M. GREENBERG. *Univ. of California.*

10:00 **1380.** Impaired conversion of phenylalanine to tyrosine after folic-antagonist therapy in women. T. L. GOODFRIEND (intr. by F. TIETZE). *Natl. Insts. of Health.*

10:15 **1381.** Cinnamyl and coumaryl ester intermediates in the synthesis of chlorogenic acid. C. C. LEVY AND M. ZUCKER (intr. by I. ZELITCH). *Connecticut Agr. Exp. Sta.*

10:30 **1382.** Coenzyme A and histidine metabolism. R. C. BALDRIDGE AND R. BURKET.* *Temple Univ.*

10:45 **1383.** Mechanism of enzymatic formation of glutamic acid (GA) from kynurenic acid (KA). O. HAYAISHI, S. KUNO,* M. TASHIRO,* H. TANIUCHI,* H. YAMADA,* K. HORIBATA,* T. SAKAN,* S. SENO* AND T. TOKUYAMA.* *Kyoto Univ. and Osaka City Univ.*

11:00 **1384.** Role of carbonate in citrulline biosynthesis. M. E. JONES AND L. SPECTOR.* *Brandeis Univ.*

11:15 **1385.** Lombricine and serine ethanolamine O-phosphodiester in the earthworm. R. J. ROSSITER, T. J. GAFFNEY,* H. ROSENBERG* AND A. H. ENNOR.* *Australian Natl. Univ.*

11:30 **1386.** Enzymic formation of CO_2 from the carboxyl group of methionine. M. MAZELIS (intr. by S. SCHWIMMER). *Western Regional Res. Lab.*

11:45 **1387.** Synthesis and metabolism of S^{35}-(dichlorovinyl)-L-cysteine. M. O. SCHULTZE AND R. F. DERR.* *Univ. of Minnesota.*

Carbohydrates III

WED. A.M.—CONRAD HILTON, UPPER TOWER

Chairman: E. Racker

9:00 **1388.** A mammalian β-keto acid reductase of unusual specificity. J. D. SMILEY AND G. ASHWELL. *Natl. Insts. of Health.*

9:15 **1389.** Oxidation of D-glucuronic acid to glucaric acid by *Phaseolus aureus* seedlings. D. S. FEINGOLD, G. A. KESSLER,* E. F. NEUFELD AND W. Z. HASSID. *Univ. of California.*

9:30 **1390.** Control of D-arabitol dehydrogenase and ethanol dehydrogenase levels in *Aerobacter aerogenes*. E. C. C. LIN, P. MCPHEDRAN AND B. B. SOMMER (intr. by H. C. TRIMBLE). *Harvard Univ.*

9:45 **1391.** L-Xylulose metabolism by *Aerobacter aerogenes*. R. L. ANDERSON (intr. by H. M. SELL). *Michigan State Univ.*

10:00 **1392.** Partial purification of deoxyribose-5-phosphate aldolase from rat liver. H. G. ROSCOE* AND W. L. NELSON. *Cornell Univ.*

10:15 **1393.** Mechanism of action of transaldolase. R. VENKATARAMAN,* A. G. DATTA* AND E. RACKER. *Public Health Res. Inst. of New York.*

10:30 **1394.** Conversion of D-glucose to 5-keto-6-deoxy-D-arabohexose. A. D. ELBEIN,* R. L. MANN, H. E. RENIS,* W. M. STARK,* H. KOFFLER AND H. R. GARNER.* *Purdue Univ. and Lilly Res. Labs.*

10:45 **1395.** 3-Ketoaraboheptose phosphate: a product of G6P metabolism. H.-G. SIE,* V. N. NIGAM* AND W. H. FISHMAN. *Tufts Univ.*

11:00 **1396.** Enzymatic utilization of glucose by a basidiomycete. H. P. MELOCHE, JR. (intr. by R. W. JACKSON). *Northern Regional Res. Lab.*

11:15 **1397.** Glucose utilization in a mutant strain of *E. coli*. C. ASENSIO, G. AVIGAD AND B. L. HORECKER. *New York Univ.*

11:30 **1398.** Progesterone-like effects of menthol on galactose metabolism. T. D. ELDER,* S. SEGAL,* E. S. MAXWELL AND Y. J. TOPPER. *Natl. Insts. of Health.*

Phospholipids I

WED. A.M.—CONRAD HILTON, BEVERLY ROOM

Chairman: D. J. Hanahan

9:00 **1399.** Phospholipids of the American cockroach. A. N. SIAKOTOS AND H. S. ZOLLER (intr. by C. C. HASSETT). *Army Chem. Ctr.* (Physiol.)

9:15 **1400.** Plasmalogens of invertebrates. M. H. HACK AND A. E. GUSSIN.* *Tulane Univ.*

9:30 **1401.** Plasmalogens of marine invertebrates. M. M. RAPPORT AND N. F. ALONZO.* *Albert Einstein Coll. of Med. and Marine Biol. Lab., Woods Hole.*

9:45 **1402.** An enzymatic reaction of CDP-diglyceride with L-α-glycerophosphate. J. KIYASU,* H. PAULUS* AND E. P. KENNEDY. *Univ. of Chicago.*

10:00 **1403.** On a new nucleotide containing inositol and its role in phosphatide biosynthesis. C. M. REDMAN* AND L. E. HOKIN. *Univ. of Wisconsin.*

10:15 **1404.** Some precursors of brain inositol phosphatide. W. THOMPSON,* D. SUBRAHMANYAM* AND K. P. STRICKLAND. *Univ. of Western Ontario.*

10:30 **1405.** Formation of phosphatidyl dimethylethanolamine in liver preparations. C. ARTOM. *Bowman-Gray Sch. of Med.*

10:45 **1406.** Incorporation of serine-3-C^{14} radioactivity into cerebral glycolipids. LUIS GARCIA* AND R. M. BURTON. *Washington Univ.*

11:00 **1407.** Metabolism of brain and liver sulfatides. J. BAKKE* AND W. E. CORNATZER. *Univ. of North Dakota.*

11:15 **1408.** Parallels between enzymatic sulfurylation of N-acetyl sphingosine and chloramphenicol. I. H. GOLDBERG (intr. by J. D. GREGORY). *Rockefeller Inst.*

11:30 **1409.** Incorporation of glycerol into lipides of bull spermatozoa. C. TERNER AND G. KORSH.* *Worcester Fndn. and Boston Univ.*

11:45 **1410.** A lecithinase A in duodenal contents of man. W. C. VOGEL AND L. ZIEVE (intr. by H. R. GUTMAN). *Univ. of Minnesota.*

Oxidative Enzymes II

WED. A.M.—CONRAD HILTON, WILLIFORD ROOM

Chairman: D. E. Green

9:00 **1411.** Rat liver monoamine oxidase. E. S. HARRIS (intr. by R. TOMARELLI). *Wyeth Inst. for Med. Res.*

9:15 **1412.** Solubilization and FAD requirement of mitochondrial sarcosine dehydrogenase. D. D. HOSKINS AND C. G. MACKENZIE. *Univ. of Colorado.*

9:30 **1413.** Sarcosine dehydrogenase. G. P. MELL* AND F. M. HUENNEKENS. *Univ. of Washington.*

9:45 **1414.** Lactate oxidation by heart muscle mitochondria. P. D. DESHPANDE,* D. HICKMAN* AND R. W. VON KORFF. *Univ. of Minnesota.*

10.00 **1415.** Mitochondrial triosephosphate isomerase. C. E. SHONK* AND G. E. BOXER. *Merck Inst.*

10:15 **1416.** Nature of the mitochondrial α-glycerophosphate dehydrogenase. R. L. RINGLER (intr. by E. B. KEARNEY). *Edsel B. Ford Inst.*

10:30 **1417.** Mitochondrial oxidation of exogenous DPNH by an α-glycerophosphate cycle. E. I. CIACCIO AND D. L. KELLER (intr. by E. E. HOWE). *Merck Inst.*

10:45 **1418.** D(-)β-hydroxybutyrate dehydrogenase in the oxidation of exogenous DPNH by mitochondria. T. M. DEVLIN AND B. H. BEDELL (intr. by W. W. UMBREIT). *Merck Inst.*

11:00 **1419.** Reaction mechanism of diaphorase (lipoic dehydrogenase). V. MASSEY AND Q. H. GIBSON.* *Univ. of Sheffield.*

11:15 **1420.** Evidence for dithiol participation in dihydrothioctyl dehydrogenase reaction. R. L. SEARLS (intr. by L. P. ZILL). *Baltimore City Hosps.*

11:30 **1421.** α-Hydroxy acid oxidases of hog kidney. L. KEAY,* C. ROBINSON,* R. MOLINARI* AND I. W. SIZER. *Massachusetts Inst. of Technol.*

11:45 **1422.** Properties of pyruvate and α-ketoglutarate dehydrogenation complexes of *E. coli*. L. J. REED AND M. KOIKE.* *Univ. of Texas.*

Enzymes IV

WED. A.M.—CONRAD HILTON, BOULEVARD ROOM

Chairman: W. D. McElroy

9:00 **1423.** Nature of nucleotide requirement in luminous extracts of *Renilla reniformis*. M. J. CORMIER (intr. by W. L. WILLIAMS). *Univ. of Georgia.*

9:15 **1424.** Purification and properties of *Gonyaulax* luciferin. V. C. BODE* AND J. W. HASTINGS. *Univ. of Illinois.*

9:30 **1425.** Active sites per molecule of acetylcholinesterase determined in a highly purified preparation. H. C. LAWLER (intr. by D. NACHMANSOHN). *Columbia Univ.*

9:45 **1426.** Isolation and degradation of an acetyl-enzyme complex formed with 3-phosphoglyceraldehyde dehydrogenase and *p*-nitrophenyl acetate. J. H. PARK, B. P. MERIWETHER,* P. CLODFELDER* AND L. W. CUNNINGHAM. *Vanderbilt Univ.*

10:00 **1427.** Amino acids at the active site of a single displacement enzyme. J. A. THOMA* AND D. E. KOSHLAND, JR. *Brookhaven Natl. Lab.*

10:15 **1428.** Effect of polyanions on the activity of trypsin. S. E. KORNGUTH* AND M. A. STAHMANN. *Univ. of Wisconsin.*

10:30 **1429.** Involvement of a tryptophan residue in the reaction of diisopropyl phosphofluoridate (DFP) with α-chymotrypsin. G. P. HESS AND J. F. WOOTTON.* *Cornell Univ.*

10:45 **1430.** Reactivity and catalysis of reactions of the serine hydroxyl group and of O-acyl serines. B. M. ANDERSON,* E. H. CORDES* AND W. P. JENCKS. *Brandeis Univ.*

11:00 **1431.** Inhibition of enzyme activity by urea. K. V. RAJAGOPALAN,* I. FRIDOVICH AND P. HANDLER. *Duke Univ.*

11:15 **1432.** Mode of action of levansucrase. F. E. EISENBERG, JR. AND S. HESTRIN.* *Natl. Insts. of Health.*

11:30 **1433.** Some effects of urea on myrothecium cellulase. P. K. DATTA, K. R. HANSON AND D. R. WHITAKER (intr. by J. F. MORGAN). *Natl. Res. Council, Ottawa.*

11:45 **1434.** Inhibition of amylases by beryllium salts. R. L. MCGEACHIN. *Univ. of Louisville.*

12:00 **1435.** Effect of certain ions on β-galactosidase activity. F. J. REITHEL AND J. C. KIM.* *Univ. of Oregon and Natl. Science Fndn.*

Mineral Metabolism

WED. A.M.—BLACKSTONE, HUBBARD ROOM

Chairman: A. E. Sobel

9:00 **1436.** Kinetic criteria of homeostasis as applied to zinc and cadmium metabolism. G. C. COTZIAS AND B. H. SELLECK (intr. by L. K. DAHL). *Brookhaven Natl. Lab.* (Pathol.)

9:15 **1437.** Manganese metabolism and adrenocortical activity: an isotopic study. E. R. HUGHES* AND G. C. COTZIAS. *Brookhaven Natl. Lab.* (Pathol.)

9:30 **1438.** Evidence of an iron requirement by *Entamoeba histolytica* cultivated in a three-amino acid medium with penicillin-inhibited cells of *Bacteroides symbosus*. N. G. LATOUR (intr. by R. E. REEVES). *Louisiana State Univ.*

9:45 **1439.** Regulation of iron transport in the gut. P. CHARLEY* AND P. SALTMAN. *Univ. of Southern California.*

10:00 **1440.** Plasma iron incorporation into ferritin. A. MAZUR, S. GREEN* AND A. CARLETON.* *Cornell Univ.*

10:15 **1441.** Cations of the calf lens. J. H. KINOSHITA, H. L. KERN* AND L. O. MEROLA.* *Harvard Univ.*

10:30 **1442.** Discrimination against strontium by bone grown in vitro. F. W. LENGEMANN (intr. by C. L. COMAR). *New York State Vet. Coll.*

10:45 **1443.** Removal of radiostrontium from milk. L. SINGER AND W. D. ARMSTRONG. *Univ. of Minnesota.*

11:00 **1444.** Modification of yttrium distribution by chelating agents in mice. E. SIEGEL AND H. SPENCER (intr. by E. J. BAUMANN). *Montefiore Hosp.*

11:15 **1445.** Influence of colloidal state on plutonium distribution and on effectiveness of DTPA therapy. A. LINDENBAUM, J. F. FRIED,* M. W. ROSENTHAL* AND J. SCHUBERT. *Argonne Natl. Lab.*

11:30 **1446.** Uptake of colloidal Au^{198} by Ehrlich ascites carcinoma cells in vitro. D. F. H. WALLACH AND D. ULLREY (intr. by M. J. HUNTER). *Harvard Univ.*

11:45 **1447.** Goiter in Michigan. I. GREENWALD. *New York Univ.*

Wednesday Afternoon, April 13, 1:30 p.m.

Protein Biosynthesis II

WED. P.M.—CONRAD HILTON, GRAND BALLROOM

Chairman: P. Berg

1:30 **1448.** Alteration in amino acid activation with functional development of the rat mammary gland. E. T. BUCOVAZ AND J. W. DAVIS (intr. by E. A. DOISY). *St. Louis Univ.*

1:45 **1449.** Amino acid activation and carrier RNA in cell nuclei. J. W. HOPKINS,* V. G. ALLFREY, AND A. E. MIRSKY. *Rockefeller Inst.*

2:00 **1450.** Thermal lability of rat liver microsomes and ribonucleoprotein-particles. K. HANSON AND R. RENDI (intr. by C. GILVARG). *New York Univ.*

2:15 **1451.** Effect of nitrous acid on amino acid acceptor ribonucleic acids. M. A. MARINI (intr. by H. H. WILLIAMS). *Cornell Univ.*

2:30 **1452.** Countercurrent distribution of amino acid-acceptor ribonucleic acids. R. W. HOLLEY AND B. P. DOCTOR.* *Cornell Univ.*

2:45 **1453.** Enrichment of specific activity of aminoacyl RNA. P. C. ZAMECNIK AND M. L. STEPHENSON. *Harvard Univ.*

3:00 **1454.** Amino acids acceptor RNA in microsomes and its relation to protein synthesis. K. C. SMITH AND R. G. DOELL (intr. by R. H. DREISBACH). *Stanford Univ.* (Pharmacol.)

3:15 **1455.** Protein synthesis from amino acids bound to purified S-RNA. G. C. WEBSTER. *Ohio State Univ.*

3:30 **1456.** Nucleotide requirement in transfer of amino acids from soluble RNA to microsomal proteins. K. MOLDAVE AND L. G. GROSSI.* *Tufts Univ.*

3:45 **1457.** Purification of a supernatant factor required for transfer of S-RNA-amino acid to liver microsomes. D. NATHANS AND W. C. HÜLSMANN (intr. by F. LIPMANN). *Rockefeller Inst.*

4:00 **1458.** S-RNA synthesis: fractionation of the enzyme-RNA complex. E. HERBERT* AND E. S. CANELLAKIS. *Massachusetts Inst. of Technol. and Yale Univ.*

Amino Acids II

WED. P.M.—CONRAD HILTON, NORMANDIE LOUNGE

Chairman: G. Cantoni

1:30 **1459.** Metabolites of labeled S-methylcysteine in rat urine. E. J. KUCHINSKAS (intr. by E. MUNTWYLER). *State Univ. of New York.*

1:45 **1460.** Purification of enzymes concerned with biosynthesis of spermidine in *E. coli*. H. TABOR AND C. W. TABOR. *Natl. Insts. of Health.*

2:00 **1461.** Enzymatic N-methylation of carnosine. I. R. MCMANUS. *Univ. of Pittsburgh.*

2:15 **1462.** Tracer studies of S-methylmethionine-homocysteine transmethylase in higher plants. J. E. TURNER (intr. by R. W. SWICK). *Argonne Natl. Lab.*

2:30 **1463.** S-methylmethionine: a major methionine metabolite in the jack bean. R. C. GREENE (intr. by G. W. SCHWERT). *Duke Univ.*

2:45 **1464.** Enzymes and cofactors for methionine biosynthesis. F. T. HATCH, R. E. CATHOU AND A. R. LARRABEE (intr. by L. G. WESSON). *Massachusetts Inst. of Technol.*

3:00 **1465.** A vitamin B_{12} protein required for methionine synthesis in extracts of *E. coli*. R. L. KISLIUK (intr. by M. SILVERMAN). *Natl. Insts. of Health.*

3:15 **1466.** Formation in vitro of an enzyme of methionine biosynthesis from vitamin B_{12} and apoenzyme. S. TAKEYAMA* AND J. M. BUCHANAN. *Massachusetts Inst. of Technol.*

3:30 **1467.** Effect of selenium on methionine formation in vivo and in vitro. I. ROSENFELD. *Univ. of Wyoming.*

3:45 **1468.** Synthesis and metabolism of DL-tryptophan-5-C^{14}. G. P. MATHUR* AND L. M. HENDERSON. *Oklahoma State Univ.*

4:00 **1469.** Metabolism of D,L-tryptophan-C^{14} in man and in rats. I. M. DIBNER,* A. FELDSTEIN,* H. FREEMAN* AND H. HOAGLAND. *Worcester Fndn.* (Physiol.)

4:15 **1470.** Tryptophan metabolism of chickens. Y. MATSUMURA (intr. by S. LEPKOWSKY). *Univ. of California.*

4:30 **1471.** Activation of 3-hydroxyanthranilic acid oxidase. R. H. DECKER AND F. R. LEACH (intr. by W. D. GALLUP). *Oklahoma State Univ.*

Oxidative Phosphorylation I; Mitochondria

WED. P.M.—CONRAD HILTON, UPPER TOWER

Chairman: A. L. Lehninger

1:30 **1472.** Thyroxine analogs and yeast metabolism. S. B. BARKER,* W. G. NG* AND W. MARX. *Univ. of Alabama and Univ. of Southern California.*

1:45 **1473.** Mechanism of stimulation of oxidative phosphorylation by thyroxine. J. Ramsey Bronk (intr. by W. W. Kielley). *Columbia Univ.*

2:00 **1474.** O-methyl thyroxine analogs. K. Tomita and H. A. Lardy. *Univ. of Wisconsin.*

2:15 **1475.** Adenosinetriphosphase activity of desiccated mitochondria. R. Penniall (intr. by J. E. Wilson). *Univ. of North Carolina.*

2:30 **1476.** Fluoride sensitive oxidative phosphorylation in a guinea pig brain mitochondrial system. H. P. Cohen (intr. by J. F. van Pilsum). *Univ. of Minnesota.*

2:45 **1477.** Calorimetric measurements during biological oxidations. R. W. Estabrook and H. Gutfreund.* *Univ. of Pennsylvania.*

3:00 **1478.** Inhibition of spontaneous and induced swelling of mitochondria by spermine. E. J. Herbst and B. H. Witherspoon.* *Univ. of Maryland.*

3:15 **1479.** Osmotic reversal of mitochondrial swelling. H. Tedeschi (intr. by D. L. Harris). *Univ. of Chicago.*

3:30 **1480.** Relationship of substrate oxidation to promotion and prevention of swelling of isolated rat liver mitochondria. F. E. Hunter, Jr., H. B. Burch, J. Fink* and L. Ford.* *Washington Univ.*

3:45 **1481.** Mechanism of aminonucleoside-induced nephrosis in the rat. II. Oxidative phosphorylation. P. Bartlett and L. Ford.* *Edsel B. Ford Inst.*

4:00 **1482.** Vitamin D and the structure of kidney mitochondria. H. F. DeLuca,* S. Reiser* and H. Steenbock. *Univ. of Wisconsin.*

4:15 **1483.** Exchange and net accumulation of radiosulfate by mitochondria. R. W. Winters,* A. M. Delluva,* J. Rosenbloom* and R. E. Davies. *Univ. of Pennsylvania.*

Phospholipids II

Wed. p.m.—Conrad Hilton, Beverly Room

Chairman: H. E. Carter

1:30 **1484.** Separation of lipid classes by chromatography on florisil. K. K. Carroll. *Univ. of Western Ontario.*

1:45 **1485.** Silicic acid chromatography of heart phosphatides. H. Bader and H. E. Morgan (intr. by C. R. Park). *Vanderbilt Univ.*

2:00 **1486.** Separation of phosphatidylethanolamine (PE) and phosphatidylserine (PS). G. Rouser, A. J. Bauman,* J. O'Brien,* and D. Heller.* *City of Hope Med. Ctr.*

2:15 **1487.** Serum lipids by direct paper chromatography. G. V. Marinetti and C. Waterhouse.* *Univ. of Rochester.*

2:30 **1488.** Paper chromatography of cerebrosides and sulfatides of brain tissue. C. B. Scrignar and V. J. Ferrans (intr. by E. Farber). *Tulane Univ.*

2:45 **1489.** Separation of different gangliosidic components of beef brain ganglioside. H. Weicker,* J. A. Dain,* G. Schmidt and S. J. Thannhauser. *Tufts Univ.*

3:00 **1490.** Lipid ethanolamine and serine in animal tissues. J. M. McKibbin. *State Univ. of New York.*

3:15 **1491.** Distribution of proteolipids in the human nervous system. L. Amaducci (intr. by J. Folch). *Harvard Univ.*

3:30 **1492.** Complex lipids of cell membranes. P. S. Olmsted (intr. by H. W. Robinson). *Temple Univ.*

3:45 **1493.** Lipids of bovine spermatozoa. L. D. Miller,* M. Bartek* and D. T. Mayer. *Univ. of Missouri.*

4:00 **1494.** Fluorescent lipids from heart age pigment. A. S. Mildvan* and B. L. Strehler. *Baltimore City Hosps.*

4:15 **1495.** Phospholipids in spinal fluid and brain. N. M. Papadopoulos,* W. Cevallos* and W. C. Hess. *Georgetown Univ.*

Steroids III

Wed. p.m.—Conrad Hilton, Williford Room

Chairman: M. J. Coon

1:30 **1496.** Role of vitamin A in adrenosteroid biosynthesis. R. A. Van Dyke, B. C. Johnson and G. Wolf. *Univ. of Illinois.*

1:45 **1497.** In vivo metabolism of mevalonic acid-2-C^{14}. J. C. Elwood* and J. T. Van Bruggen. *Univ. of Oregon.*

2:00 **1498.** Mevalonic kinase in rabbit liver. K. Markley and E. Smallman (intr. by E. O. Keiles). *Natl. Insts. of Health.*

2:15 **1499.** Vinylacetyl isomerase. H. C. Rilling* and M. J. Coon. *Univ. of Michigan.*

2:30 **1500.** Phosphorylation of mevalonic acid by plant extracts. W. D. Loomis and J. Battaile (intr. by L. F. Remmert). *Oregon State Coll.*

2:45 **1501.** Effect of mevalonate analogs on the biosynthesis of cholesterol in vitro. E. Schiffmann and H. Weiss (intr. by E. Titus). *Natl. Insts. of Health.*

3:00 **1502.** Nonutilization of mevalonic acid in steroidogenesis by testis tissue. K. Savard, M. Goldweber* and J. W. Goldzieher.* *Univ. of Miami and Southwest Fndn.*

3:15 **1503.** Conversion of zymosterol to cholesterol. G. J. Schroepfer, Jr. (intr. by W. D. Armstrong). *Univ. of Minnesota.*

3:30 **1504.** Intermediates in a pathway from lanosterol to cholesterol. A. A. Kandutsch and A. E. Russell.* *Roscoe B. Jackson Mem. Lab.*

3:45 **1505.** Conversion of cholesterol to pregnenolone. G. Constantopoulos and T. T. Tchen. *Wayne State Univ.*

4:00 **1506.** Conversion of 4 α-methyl-Δ^7 cholesten-3β-ol-H^3 to cholesterol by rat liver. I. D. Frantz, Jr., M. Ener* and M. L. Mobberley.* *Univ. of Minnesota.*

4:15 **1507.** Origin of polyynes in *Polyporus anthracophilus*. J. D. Bu'Lock and D. C. Allport (intr. by E. Oginsky). *Manchester Univ.*

Pyrimidines I

Wed. p.m.—Conrad Hilton, Boulevard Room

Chairman: R. M. Fink

1:30 **1508.** Effect of urethane upon pyrimidine biosynthesis. E. Bresnick (intr. by G. B. Elion). *Wellcome Res. Labs.*

1:45 **1509.** Aspartate carbamyl transferase and biotin. M. A. Grillo and S. P. Mistry (intr. by T. S. Hamilton). *Univ. of Illinois.*

2:00 **1510.** Crystalline dihydroorotic dehydrogenase. H. C. Friedmann and G. Krakow (intr. by F. A. Loewus). *Univ. of Chicago.*

2:15 **1511.** Metabolism of 5-ribosyluracil. A. W. Lis* and F. W. Allen. *Univ. of California.*

2:30 **1512.** Enzymatic synthesis of imidazoleacetic acid ribotide. G. M. Crowley (intr. by G. de la Haba). *Natl. Insts. of Health.*

2:45 **1513.** Enzymatic reduction of 5′-cytidylic acid to deoxycytidylic acid. E. C. Moore (intr. by G. A. LePage). *Univ. of Texas.*

3:00 **1514.** Thymidylate kinase activity in mammalian tissues. H. H. Hiatt and T. B. Bojarski.* *Harvard Univ.*

3:15 **1515.** Conversion of thymidine to thymidine nucleotides and DNA in vivo. R. L. Potter and O. F. Nygaard.* *Univ. of Michigan.*

3:30 **1516.** Deoxycytidylate deaminase and thymidylate

synthetase. F. MALEY* AND G. F. MALEY. *New York State Dept. of Health.*

3:45 **1517.** Alternative pathways for biosynthesis of thymidylic acid. V. R. POTTER, H. C. PITOT,* A. B. MCELYA* AND P. A. MORSE.* *Univ. of Wisconsin.*

4:00 **1518.** Metabolic alterations accompanying fatty infiltration of liver induced by orotic acid. R. E. HANDSCHUMACHER, W. A. CREASEY AND L. HANKIN (intr. by A. D. WELCH). *Yale Univ. and Connecticut Agr. Exp. Sta.*

Glycoproteins; Sialic Acid

WED. P.M.—BLACKSTONE, HUBBARD ROOM

Chairman: Z. Dische

1:30 **1519.** Binding of anions to connective tissue surfaces. N. R. JOSEPH, M. B. ENGEL* AND D. M. LASKIN.* *Univ. of Illinois.*

1:45 **1520.** Wound healing: glycoproteins of experimental wound tissue and fluid. M. R. SHETLAR, D. L. HERN, B. N. WHITE AND J. A. SCHILLING (intr. by F. SHEPPARD). *Univ. of Oklahoma.*

2:00 **1521.** Isolation of a glycoprotein from rat granulomas. A. F. FISHKIN AND G. S. BERENSON (intr. by R. A. COULSON). *Louisiana State Univ.*

2:15 **1522.** Preparation of two different glycopeptide fractions from human gamma globulin. Z. DISCHE AND O. GABRIEL.* *Columbia Univ.*

2:30 **1523.** Bovine submaxillary and sublingual mucins. S. TSUIKI,* Y. HASHIMOTO* AND W. PIGMAN. *Univ. of Alabama.*

2:45 **1524.** Sialic acids. L. WARREN AND S. S. SPICER (intr. by K. KURAHASHI). *Natl. Insts. of Health.*

3:00 **1525.** Chemical properties of the tumor-damaging complex separated from *S. marcescens*. E. MERLER, A. PERRAULT AND P. T. MORA (intr. by M. J. SHEAR). *Natl. Insts. of Health.*

3:15 **1526.** Polysaccharides that contain sialic acid. G. T. BARRY. *Univ. of Tennessee.*

3:30 **1527.** Isolation of neuraminidase from influenza virus. L. W. MAYRON* AND M. E. RAFELSON, JR. *Univ. of Illinois.*

Biochemistry-Nutrition Smoker

WEDNESDAY, 9:00 P.M.—CONRAD HILTON, GRAND BALLROOM

Exhibits—Inspection Periods

Monday: 8:00 A.M. to 5:00 P.M.

Tuesday through Thursday: 8:45 A.M. to 5:00 P.M.

Friday: 8:45 A.M. to 12:00 noon

Thursday Morning, April 14, 9:00 a.m.

Metabolic Controls

THURS. A.M.—CONRAD HILTON, GRAND BALLROOM

Chairman: Boris Magasanik

9:00 **1528.** Feedback control of action of isocitratase in *E. coli*. H. E. UMBARGER. *Harvard Univ.*

9:15 **1529.** Alkaline phosphatase formation in *B. subtilis*. C. ANAGNOSTOPOULOS (intr. by J. SPIZIZEN). *Western Reserve Univ.*

9:30 **1530.** Acetylornithine δ-transaminase: repressibility and other properties. A. M. ALBRECHT* AND H. J. VOGEL. *Rutgers Univ.*

9:45 **1531.** Intracellular regulation of cytidine nucleotide biosynthesis. R. B. HURLBERT. *Univ. of Texas.*

10:00 **1532.** A compensatory response to a false feedback inhibitor. H. S. MOYED. *Harvard Univ.*

10:15 **1533.** Adenine deficiency in a histidine auxotroph. A. SHEDLOVSKY* AND B. MAGASANIK. *Harvard Univ.*

10:30 **1534.** Influence of dietary aromatic amino acids on phenylalanine hydroxylase activity. R. A. FREEDLAND,* M. C. KRAKOWSKI* AND H. A. WAISMAN. *Univ. of Wisconsin.*

10:45 **1535.** Enzyme inhibition from feeding L-tyrosine to scorbutic guinea pigs. B. N. LADU AND V. G. ZANNONI.* *Natl. Insts. of Health.*

11:00 **1536.** Tyrosine-induced changes of liver enzyme levels causing *p*-hydroxyphenylpyruvic acid excretion. M. N. D. GOSWAMI AND W. E. KNOX. *Harvard Univ.*

11:15 **1537.** Nature of the 'adaptive' increase in tyrosine α-ketoglutarate transaminase activity of rat liver. F. T. KENNEY (intr. by A. HOLLAENDER). *Oak Ridge Natl. Lab.* (Physiol.)

11:30 **1538.** Hormone-modulated feedback control of creatine biosynthesis. J. B. WALKER. *Baylor Univ.*

11:45 **1539.** Use of kinetic isotope effects in studies of metabolic regulation. I. A. ROSE. *Yale Univ.*

12:00 **1540.** Enzyme adaptation in potassium depletion: pyruvate kinase in renal cortex and medulla. R. P. DAVIS (intr. by H. A. EDER). *Univ. of North Carolina.*

Oxidative Enzymes III

THURS. A.M.—CONRAD HILTON, NORMANDIE LOUNGE

Chairman: R. H. Burris

9:00 **1541.** Enzymatic decolorization of anthocyanins. D. M. SCHEINER,* J. P. VAN BUREN* AND A. C. WAGENKNECHT. *Cornell Univ.*

9:15 **1542.** 7α-Hydroxylation of adrenal steroids by surviving hamster liver slices. J. J. SCHNEIDER. *Jefferson Med. Coll.*

9:30 **1543.** Aniline hydroxylation cofactor of lipid nature. N. H. SLOANE. *Mellon Inst.*

9:45 **1544.** N-hydroxylation—a new metabolic reaction. J. W. CRAMER,* J. A. MILLER AND E. C. MILLER. *Univ. of Wisconsin.*

10:00 **1545.** Reduction of sulfate to sulfite by soluble ensymes of *Desulfovibrio desulfuricans*. H. D. PECK (intr. by M. I. DOLIN). *Oak Ridge Natl. Lab.*

10:15 **1546.** Substrates for yeast sulfate reductase and stimulation by a heat-stable factor. L. G. WILSON,* T. ASAHI* AND R. S. BANDURSKI. *Michigan State Univ.*

10:30 **1547.** Purification and properties of hydrogenase of *Desulphovibrio desulphuricans*. E. RIKLIS* AND D. RITTENBERG. *Columbia Univ.*

10:45 **1548.** A cell-free nitrite oxidizing system from nitrobacter. M. I. H. ALEEM* AND A. NASON. *Johns Hopkins Univ.*

11:00 **1549.** Nitrogen fixation by cell-free preparations from blue-green algae and clostridia. K. C. SCHNEIDER,* R. N. SINGH,* C. BRADBEER* AND R. H. BURRIS. *Univ. of Wisconsin.*

11:15 **1550.** Nitrogen fixation in cell-free extracts of *Clostridium pasteurianum*. I. Preparation of extracts. J. E. CARNAHAN AND J. E. CASTLE (intr. by H. R. ROSENBERG). *E. I. du Pont.*

11:30 **1551.** Nitrogen fixation in cell-free extracts of *Clostridium pasteurianum*. II. Mechanism of fixation. L. E. MORTENSON (intr. by T. R. WOOD). *E. I. du Pont.*

11:45 **1552.** Nitrogen fixation in cell-free extracts of *Clostridium pasteurianum*. III. Nitrogen induced difference absorption spectra of cell-free extracts. H. F. MOWER (intr. by C. G. NIEMANN). *E. I. du Pont.*

Protein Biosynthesis III

THURS. A.M.—CONRAD HILTON, UPPER TOWER

Chairman: R. W. Schweet

9:00 **1553.** Effect of wounding on uptake of sulfur amino acids by leucocytes. M. B. WILLIAMSON, M. V. WHALEN* AND H. B. HALEY.* *Loyola Univ.*

9:15 **1554.** Incorporation of phenylcysteines into proteins. J. T. SMITH* AND J. L. WOOD. *Univ. of Tennessee.*

9:30 **1555.** Relationship between intracellular concentration of leucine-C^{14} and its incorporation into globin in the duck erythrocyte. D. S. WIGGANS, W. W. BURR, JR. AND H. W. RUMSFELD, JR.* *Univ. of Texas.*

9:45 **1556.** Protein synthesis in regenerating liver. G. A. BRAUN,* J. B. MARSH AND D. L. DRABKIN. *Univ. of Pennsylvania.*

10:00 **1557.** Tryptophan pyrrolase induction and RNA metabolism. P. FEIGELSON. *Columbia Univ.*

10:15 **1558.** Amino acid uptake by liver protein of intact and adrenalectomized rats during pyrrolase induction. O. GREENGARD. *Columbia Univ.*

10:30 **1559.** Incorporation of amino acids into gastric proteins of the rabbit. M. A. KARASEK (intr. by L. SHUSTER). *Tufts Univ.*

10:45 **1560.** Biosynthesis of a plasma glycoprotein. J. E. RICHMOND. *Harvard Univ.*

11:00 **1561.** Sources of methionine for liver protein synthesis. A. WAINER* AND A. L. KOCH. *Univ. of Florida.*

11:15 **1562.** Role of peptides in the synthesis of streptococcal protein. E. N. FOX* AND L. O. KRAMPITZ. *Western Reserve Univ.*

11:30 **1563.** Peptide synthesis with microsomal aminopeptidase of swine kidney. C. H. O'NEAL (intr. by F. BINKLEY). *Emory Univ.*

11:45 **1564.** Pattern of protein turnover in mouse brain at rest and after stimulation, studied with C^{14}-labeled substances and radioautography in serial sections. J. BEUTTAS, M.

BALABAN AND A. GEIGER (intr. by O. T. BAILEY). *Univ. of Illinois.* (Pathol.)

Amino Acids III

THURS. A.M.—CONRAD HILTON, BEVERLY ROOM

Chairman: A. Meister

9:00 **1565.** Selenium-75 in intracellular particulate matter of rat liver. D. M. ROTH* AND K. P. MCCONNELL. *Univ. of Louisville.*

9:15 **1566.** Drug detoxication by rat liver microsomes. J. S. ROTH AND J. BUKOVSKY.* *Hahnemann Med. Coll.*

9:30 **1567.** Dependence of urinary indole excretion in Hartnup disease upon gut flora. K. N. F. SHAW, D. REDLICH,* S. W. WRIGHT* AND J. B. JEPSON.* *California Inst. of Technol. and Middlesex Hosp. Med. Sch.*

9:45 **1568.** Formation of N-fatty acyl amino acids by the action of rat liver enzyme. T. FUKUI* AND B. AXELROD. *Purdue Univ.*

10:00 **1569.** Amino acid lipid complexes formed in hen oviduct during protein synthesis. R. W. HENDLER. *Natl. Insts. of Health.*

10:15 **1570.** Role of phospholipides in metabolism of amino acids by mammalian cells. W. L. GABY, H. L. WOLIN* AND I. ZAJAC.* *Hahnemann Med. Coll.* (Immunol.)

10:30 **1571.** Biosynthesis of serine in the chick. R. L. WIXOM, S. W. CONNER* AND W. M. RIDDELL.* *Univ. of Arkansas.* (Nutr.)

10:45 **1572.** Serine-3-C^{14} as precursor of choline in yeast. G. J. ALEXANDER. *Columbia Univ.*

11:00 **1573.** Conversion of 2-dimethylaminoethanol to dimethylglycine in liver. G. SMALL* AND W. SAKAMI. *Western Reserve Univ.*

11:15 **1574.** Mechanism of choline biosynthesis. J. BREMER* AND D. M. GREENBERG. *Univ. of California.*

11:30 **1575.** Stimulation of choline synthesis by cytidine triphosphate. C. J. ACKERMAN AND M. CHOU.* *Virginia Polytech. Inst.* (Nutr.)

11:45 **1576.** 2-Amino-2-methylpropanol, a competitive inhibitor of choline synthesis. I. C. WELLS AND C. N. REMY. *State Univ. of New York.*

Proteins III

THURS. A.M.—CONRAD HILTON, WILLIFORD ROOM

Chairman: W. H. Stein

9:00 **1577.** Fractionation of guinea pig brain prôteins with encephalitogenic activity. M. W. KIES, J. B. MURPHY* AND E. C. ALVORD, JR.* *Natl. Insts. of Health and Baylor Med. Sch.*

9:15 **1578.** Fractionation and chromatographic analysis of anionic nuclear proteins. S. M. AMER* AND H. BUSCH. *Univ. of Illinois.*

9:30 **1579.** Fractionation of insulin on diethylaminoethylcellulose. M. VOLINI AND M. A. MITZ (intr. by W. F. WHITE). *Armour and Co.*

9:45 **1580.** Ion exchange chromatography of prolactin. R. D. COLE. *Univ. of California.*

10:00 **1581.** α- and β-MSH in monkey pituitary glands. T. H. LEE,* A. B. LERNER AND V. BUETTNER-JANUSCH.* *Yale Univ.*

10:15 **1582.** Isolation and partial characterization of insoluble peptide from tryptic digests of tobacco mosaic virus (TMV) protein. A. TSUGITA AND L. K. RAMACHANDRAN (intr. by W. M. STANLEY). *Univ. of California.*

10:30 **1583.** Amino acid sequence of cytochrome *c*. E. MARGOLIASH (intr. by M. WEISSMAN). *Univ. of Utah.*

10:45 **1584.** Comparison of chymotrypsinogens α and β. B. KASSELL AND M. LASKOWSKI. *Marquette Univ.*

11:00 **1585.** S-carboxymethyl papain. J. R. KIMMEL AND A. J. PARCELLS.* *Univ. of Utah.*

11:15 **1586.** Histidine and phenylalanine sequences in papain. A. LIGHT* AND E. L. SMITH. *Univ. of Utah.*

11:30 **1587.** Structure of circulin *b*. H. KOFFLER AND T. KOBAYASHI.* *Purdue Univ.*

11:45 **1588.** Specificity of reaction of iodoacetate with a histidine residue in ribonuclease. G. R. STARK,* W. H. STEIN AND S. MOORE. *Rockefeller Inst.*

12:00 **1589.** Amino acid composition of human gamma globulin subfractions. K. R. WOODS* AND R. L. ENGLE, JR. *Cornell Univ.* (Physiol.)

Pyrimidines II

THURS. A.M. CONRAD HILTON, BOULEVARD ROOM

Chairman: C. Heidelberger

9:00 **1590.** Specificity of pyrimidine catabolizing system of rat liver. H. W. BARRETT, S. N. MUNAVALLI* AND P. NEWMARK. *Univ. of Kansas.*

9:15 **1591.** A mechanism of resistance to fluorinated pyrimidines. K. L. MUKHERJEE,* K. U. HARTMANN,* G. KALDOR* AND C. HEIDELBERGER. *Univ. of Wisconsin.*

9:30 **1592.** Unbalanced growth in *E. coli* K-12 induced by 5-fluorouracil. A. TOMASZ* AND E. BOREK. *Columbia Univ.*

9:45 **1593.** Introduction of 5-iodouracil into DNA mammalian cells. E. G. HAMPTON, M. A. RICH AND M. L. EIDINOFF (intr. by R. K. BARCLAY). *Sloan-Kettering Inst.*

10:00 **1594.** Iododeoxyuridine (IDU) as a tracer of DNA metabolism in vivo. R. C. KRUEGER,* D. GITLIN,* S. L. COMMERFORD,* J. STEIN* AND W. L. HUGHES. *Brookhaven Natl. Lab. and Children's Med. Ctr., Boston.*

10:15 **1595.** Comparison of biological effects of 5-chlorodeoxyuridine with other 5-halopyrimidine deoxyribosides. D. M. FRISCH,* B. HUANG* AND D. W. VISSER. *Univ. of Southern California.*

10:30 **1596.** Fate of tritiated thymidine in *Paramecium aurelia.* J. BERECH, JR.* AND W. J. VAN WAGTENDONK. *Indiana Univ.*

10:45 **1597.** Localization of tritium in the methyl group of thymine. M. FRIEDKIN. *Tufts Univ.*

11:00 **1598.** Sources of 5-methyl carbon of desoxyribonucleic acid thymine in bone marrow. I. KORC,* M. MUNIZ,* B. MENDIOROZ* AND J. R. TOTTER. *Univ. of Montevideo.*

11:15 **1599.** Microbiologic assay for thymine using a mutant of *Streptococcus faecalis.* V. M. DOCTOR. *Univ. of Texas.*

Lipid Metabolism II

THURS. A.M.—CONGRESS, GOLD ROOM

Chairman: S. Weinhouse

9:00 **1600.** Tissue distribution of C^{14} after intravenous injection of labeled free fatty acid (FFA) in the nephrotic rat. C. L. MALMENDIER (intr. by J. H. BAXTER). *Natl. Insts. of Health.* (Pharmacol.)

9:15 **1601.** Butyric acid incorporation in bovine milk fat synthesis. S. KUMAR AND K. LALKA (intr. by V. S. WARAVDEKAR). *Georgetown Univ.* (Pharmacol.)

9:30 **1602.** Chlorpromazine and C^{14} acetate incorporation into fatty acids and cholesterol. J. A. CHRISTENSEN AND A. W. WASE (intr. by M. J. BOYD). *Hahnemann Med. Coll.*

9:45 **1603.** Increased net synthesis of plasma low density lipoproteins by the perfused liver of nephrotic rats. J. B. MARSH. *Univ. of Pennsylvania.*

10:00 **1604.** Influence of fatty acid in diet on mitochondria. M. K. HORWITT, B. CENTURY,* C. C. HARVEY* AND F. NAVAZIO.* *Elgin State Hosp.*

10:15 **1605.** Rare earth fatty liver: plasma free fatty acids. F. SNYDER,* N. STEPHENS,* L. A. GERST* AND G. C. KYKER. *Oak Ridge Natl. Labs.*

10:30 **1606.** Formation of palmitaldehyde in rat brain. K. HOSHISHIMA,* P. V. VIGNAIS* AND I. ZABIN. *Univ. of California.*

10:45 **1607.** Triglyceride synthesis and free fatty acid (FFA) release in adipose tissue homogenates. D. STEINBERG, M. VAUGHAN, S. MARGOLIS* AND A. KARMEN.* *Natl. Insts. of Health.*

11:00 **1608.** Hormone effects on glucose uptake and phosphorylase activity in adipose tissue. M. VAUGHAN. *Natl. Insts. of Health.*

11:15 **1609.** Liberation and stimulation of adipose tissue lipases. L. MASHBURN,* R. BROWN* AND W. S. LYNN. *Duke Univ.*

11:30 **1610.** Effect of epinephrine on lipolytic activity of adipose tissue. M. A. RIZACK (intr. by R. M. ARCHIBALD). *Rockefeller Inst.*

11:45 **1611.** Activation of lipoprotein lipase by polyanions other than heparin. P. BERNFELD AND T. F. KELLEY.* *Bio-Research Inst.*

Clinical Chemistry

THURS. A.M.—BLACKSTONE, HUBBARD ROOM

Chairman: W. Sperry

9:00 **1612.** Spectrophotometric measurement of blood pH F. L. RODKEY. *Naval Med. Res. Inst.*

9:15 **1613.** Serum electrolytes in mentally retarded children fed L-glutamine. L. L. ROGERS AND W. A. NEWTON (intr. by C. G. SKINNER). *Univ. of Texas.*

9:30 **1614.** Comparative ultrafiltration of Sr^{85} and Ca^{45} from sera of normals and of patients with protein and calcium abnormalities. M. KARA AND J. SAMACHSON (intr. by T. F. GALLAGHER). *Montefiore Hosp.*

9:45 **1615.** Correlation between serum Cu, ceruloplasmin activity and C-reactive protein (CRP). E. W. RICE (intr. by G. J. COX). *Presbyterian Hosp., Pittsburgh.*

10:00 **1616.** Enzymic determination of glucose and an improved glucose-oxidase method. M. E. WASHKO (intr. by R. H. MCCOY). *Presbyterian Hosp., Pittsburgh.*

10:15 **1617.** A rapid acid phosphatase test for evaluation of androgen activity. J. E. KIRK. *Washington Univ.*

10:30 **1618.** Determination of Δ5-pregnene-3β,17α,20α-triol (5PT) in urine. H. WILSON. *Natl. Insts. of Health.*

10:45 **1619.** Extension of the Porter-Silber reaction to α-ketolic steroids lacking a hydroxyl group at C-17. M. L. LEWBART* AND V. R. MATTOX. *Mayo Fndn.*

11:00 **1620.** Fluorometry of blood progesterone. J. C. TOUCHSTONE AND T. MURAWEC. *Univ. of Pennsylvania.*

11:15 **1621.** Analysis of human urine for 3,5-cycloandrostan-6β-ol-17-one. W. R. NES, L. SEGAL AND B. SEGAL (intr. by R. I. DORFMAN). *Clark Univ. and Worcester Fndn.*

11:30 **1622.** In vivo measurement of the degradation rate of normal albumin by the whole-body gamma spectrometer. S. W. LIPPINCOTT, S. H. COHN AND J. S. ROBERTSON. *Brookhaven Natl. Lab.* (Pathol.)

11:45 **1623.** Preparation and behavior in man of I^{131}-labeled human serum albumin. Y. TAKEDA* AND E. B. REEVE. *Univ. of Colorado.* (Physiol.)

12:00 **1624.** Serum enzymes and biochemical individuality. W. FRAJOLA, E. MEYER-ARENDT* AND J. WALTZ.* *Ohio State Univ.*

Thursday Afternoon, April 14, 1:30 p.m.

Photosynthesis and Photophosphorylation

THURS. P.M.—CONRAD HILTON, GRAND BALLROOM

Chairman: D. I. Arnon

1:30 **1625.** Diurnal concentration of soybean leaf chlorophylls. J. L. WICKLIFF* AND S. ARONOFF. *Iowa State Univ.*

1:45 **1626.** Photosynthetic and respiratory enzymes in leaves. R. SMILLIE* AND R. C. FULLER. *Brookhaven Natl. Lab.*

2:00 **1627.** Formation of TPN-requiring glyceraldehyde phosphate dehydrogenase during development of chloroplasts in *Euglena gracilis.* G. BRAWERMAN AND N. KONIGSBERG.* *Columbia Univ.*

2:15 **1628.** Site of inhibition of iodoacetamide in photosynthesis and respiration. M. GIBBS AND N. CALO.* *Cornell Univ.*

2:30 **1629.** Effect of CMU on spinach chloroplast photophosphorylation. A. T. JAGENDORF AND M. MARGULIES.* *Johns Hopkins Univ.*

2:45 **1630.** Photophosphorylation in Tris-treated spinach chloroplasts. B. STERN (intr. by M. E. HANKE). *Univ. of Chicago.*

3:00 **1631.** Oxidative photosynthetic phosphorylation. D. W. KROGMANN (intr. by M. V. BUELL). *Univ. of Chicago.*

3:15 **1632.** Participation of O_2 and peroxide in photophosphorylation elicited by FMN and vitamin K_3. T. NAKAMOTO* AND B. VENNESLAND. *Univ. of Chicago.*

3:30 **1633.** Coupled photoreactions of chloroplasts. L. P. VERNON AND W. S. ZAUGG.* *Brigham Young Univ.*

3:45 **1634.** Bacterial photosynthesis and assimilation of acetate via citramalic and citric acid. D. I. ARNON, M. LOSADA,* A. V. TREBST* AND S. OGATA.* *Univ. of California.*

4:00 **1635.** Paths of electron transfer in photosynthetic bacteria. M. NISHIMURA (intr. by M. R. EHRENSTEIN). *Univ. of Pennsylvania.*

4:15 **1636.** Light-induced ATP-hydrolysis in *Anabaena variabilis* and spinach preparations. B. PETRACK (intr. by M. KUNITZ). *Rockefeller Inst.*

Tricarboxylic Acid Cycle

THURS. P.M.— CONRAD HILTON, NORMANDIE LOUNGE

Chairman: J. A. Olson

1:30 **1637.** Citrate and tricarboxylic acid cycle enzymes in the caterpillar of the southern armyworm, *Prodenia eridania.* L. LEVENBOOK. *Natl. Insts. of Health.* (Physiol.)

1:45 **1638.** Changes in pyruvate metabolism in the TCA cycle in postnatal development. A. D. FREEDMAN AND A. NEMETH (intr. by S. GRAFF). *Columbia Univ. and Univ. of Pennsylvania.*

2:00 **1639.** Importance of TPN-dependent malate dehydrogenase in providing Krebs cycle intermediates. W. M. FITCH (intr. by A. GOLDSTEIN). *Stanford Univ.* (Pharmacol.)

2:15 **1640.** Metabolic fate of labeled citric acid. T. A. CORTESE, JR.* AND A. C. KUYPER. *Wayne State Univ.*

2:30 **1641.** Oxidation rates of acetate by normal and viral infected chick membrane. W. A. SHULLS* AND B. M. TOLBERT. *Univ. of Colorado.*

2:45 **1642.** Sulfanilamide acetylation with acetate and ethanol. R. SNYDER,* M. P. SCHULMAN AND W. W. WESTERFELD. *State Univ. of New York.*

3:00 **1643.** Purification and properties of malate synthetase. G. H. DIXON, H. L. KORNBERG AND P. LUND (intr. by D. A. SCOTT). *Univ. of Oxford.*

3:15 **1644.** On the mechanism of acetyl transfer. K. B. JACOBSON (intr. by G. D. NOVELLI). *Oak Ridge Natl. Lab.*

3:30 **1645.** Enzymatic and nonenzymatic decarboxylation of α-keto acids. E. JUNI. *Emory Univ.*

3:45 **1646.** Enzymatic oxidation of acetol by liver. K. H. SHULL* AND O. N. MILLER. *Tulane Univ.*

4:00 **1647.** Metabolism of hydroxypyruvate. J. L. HEDRICK* AND H. J. SALLACH. *Univ. of Wisconsin.*

4:15 **1648.** Dinitrophenol-induced stimulation of dark fixation of CO_2 in *Chlorella*. M. L. STILLER (intr. by H. GAFFRON). *Univ. of Chicago.*

Proteins IV

THURS. P.M.—CONRAD HILTON, UPPER TOWER

Chairman: J. S. Fruton

1:30 **1649.** Human plasma mercaptalbumin and nonmercaptalbumin. T. P. KING (intr. by E. H. AHRENS). *Rockefeller Inst.*

1:45 **1650.** Isomerization reaction in human mercaptalbumin. P. CLARK,* M. R. RACHINSKY* AND J. F. FOSTER. *Purdue Univ.*

2:00 **1651.** Properties of a cadmium protein from equine kidney cortex. J. H. R. KÄGI (intr. by G. P. BERRY). *Harvard Univ.* (Immunol.)

2:15 **1652.** Physicochemical and immunochemical characterization of swine pituitary growth hormone. H. PAPKOFF,* R. N. MOUDGAL* AND C. H. LI. *Univ. of California.*

2:30 **1653.** Physicochemical properties of α-crystallin from bovine lens. S. K. NIYOGI* AND V. L. KOENIG. *Northwestern Univ.*

2:45 **1654.** Certain properties of α_s-casein. D. F. WAUGH, M. LUDWIG,* J. M. GILLESPIE,* J. GARNIER,* E. S. KLEINER* AND R. W. NOBLE, JR. *Massachusetts Inst. of Technol.*

3:00 **1655.** Similarities in structures of human serum lipoproteins. B. SHORE AND V. SHORE (intr. by G. M. SCHOEPFLE). *Washington Univ.* (Physiol.)

3:15 **1656.** Glutamate dehydrogenases: validity of sulfhydryl estimation; facilitation by $CH_3Hg^{203}Br$. P. GEIGER,* O. K. REISS, J. WEIN* AND L. HELLERMAN. *Johns Hopkins Univ.*

3:30 **1657.** Preparation and properties of purified intrinsic factor. L. ELLENBOGEN (intr. by B. L. HUTCHINGS). *Lederle Labs.*

3:45 **1658.** Subcellular components of bovine pancreas. E. COHEN* AND P. J. KELLER. *Univ. of Washington.*

4:00 **1659.** Protein composition of zymogen granules. L. J. GREENE (intr. by C. H. W. HIRS). *Rockefeller Inst.*

4:15 **1660.** Purification and partial characterization of a viral hemagglutination inhibitor from human erythrocytes. R. H. KATHAN,* R. J. WINZLER AND C. A. JOHNSON.* *Univ. of Illinois.*

Growth Regulation

THURS. P.M.—CONRAD HILTON, BEVERLY ROOM

Chairman: W. F. Loomis

1:30 **1661.** Effect of 2-chloroethyltrimethylammonium chloride and related compounds upon plant growth. N. E. TOLBERT. *Michigan State Univ.*

1:45 **1662.** A heat-inactivated factor required for asexual growth of hydra. D. L. CLAYBROOK* AND R. E. EAKIN. *Univ. of Texas.*

2:00 **1663.** Erythropoietic stimulating factor (ESF) production in nephrectomized rabbits. N. I. GALLAGHER, J. M. MCCARTHY AND R. D. LANGE (intr. by W. J. HARRINGTON). *St. Louis VA Hosp.* (Pathol.)

2:15 **1664.** Erythropoietic inhibiting factor in red blood cells. W. J. BLUNT AND M. BERG.* *St. Luke's Hosp., Cleveland.* (Pathol.)

2:30 **1665.** Suppression of erythropoiesis by certain estrogens and thiocyanate. P. P. DUKES* AND E. GOLDWASSER. *Univ. of Chicago.*

2:45 **1666.** Nature and stimulus of 'compensatory hypertrophy' of the kidney. D. P. SIMPSON (intr. by A. B. HASTINGS). *Scripps Clinic.*

3:00 **1667.** Stimulation of cell division in normal rat liver by a factor in serum from hepatectomized rats. M. ZIMMERMAN AND E. CELOZZI (intr. by U. J. LEWIS). *Merck.*

3:15 **1668.** Nucleic acids and induced amphibian metamorphosis. F. J. FINAMORE* AND E. FRIEDEN. *Florida State Univ.*

3:30 **1669.** Improved media for axenic cultivation of *Caenorhabditis briggsae* (Nematoda). E. L. HANSEN, F. W. SAYRE* AND E. A. YARWOOD.* *Kaiser Fndn.* (Pharmacol.)

Purines

THURS. P.M.—CONRAD HILTON, WILLIFORD ROOM

Chairman: J. M. Buchanan

1:30 **1670.** Linear gradient elution from Dowex-1-formate for nucleotides and phosphate esters of erythrocyte. S. A. MORELL, V. E. AYERS* AND T. J. GREENWALT. *Marquette Univ.*

1:45 **1671.** Changes in nucleotides of stored human blood. C. BISHOP, D. M. RANKINE AND J. H. TALBOTT (intr. by W. D. LANGLEY). *Univ. of Buffalo.*

2:00 **1672.** Metabolism of inosine by human red blood cells. G. BUCOLO* AND G. R. BARTLETT. *Scripps Clinic.*

2:15 **1673.** Purine nucleotide biosynthesis in the rabbit reticulocyte. J. L. COOK,* B. A. LOWY* AND I. M. LONDON. *Albert Einstein Coll. of Med.*

2:30 **1674.** Role of biotin in utilization of aminoimidazole for purine biosynthesis. A. G. MOAT AND F. NASUTI.* *Hahnemann Med. Coll.*

2:45 **1675.** Enzymatic synthesis and demethylation of 6-methylaminopurine. C. N. REMY. *State Univ. of New York.*

3:00 **1676.** Synthesis and enzymic inhibitions of ribonucleotide derivatives of purine analogs. A. HAMPTON (intr. by G. B. BROWN). *Sloan-Kettering Inst.*

3:15 **1677.** Biochemical activity of 4-aminopyrazolo (3,4-D) pyrimidine in the Ehrlich carcinoma. A. C. SARTORELLI,* B. A. BOOTH* AND T. A. MCCOY. *Samuel R. Noble Fndn.*

3:30 **1678.** A mechanism of resistance to 6-thioguanine. R. W. BROCKMAN AND P. STUTTS (intr. by H. E. SKIPPER). *Southern Res. Inst.*

3:45 **1679.** Mechanism of bacteriostatic action of psicofuranine on *E. coli*. L. SLECHTA (intr. by M. H. KUIZENGA). *Upjohn Co.*

4:00 **1680.** Effect of pyrazoloadenine on *Candida utilis* and *E. coli*. A. S. BRECHER, B. S. BAKER AND M. B. BONCER (intr. by E. M. K. GEILING). *Food and Drug Admin.*

4:15 **1681.** Enzyme levels in the sarcoma-180 of mice treated with 6-mercaptopurine. P. J. FODOR AND D. A. CLARKE. *Sloan-Kettering Inst.*

Hemoglobin

THURS. P.M.—CONRAD HILTON, BOULEVARD ROOM

Chairman: H. Itano

1:30 **1682.** Identification of oxygenation-linked acid groups with the β-chain of human hemoglobin. A. RIGGS AND M. WELLS.* *Univ. of Texas.*

1:45 **1683.** Genetic control of α- and β-chains of hemoglobin. H. A. ITANO AND E. ROBINSON.* *Natl. Insts. of Health.*

2:00 **1684.** Separation of tryptic peptides from the α-chain of human hemoglobin A by countercurrent distribution. W. H. KONIGSBERG AND R. J. HILL (intr. by D. W. WOOLLEY). *Rockefeller Inst.*

2:15 **1685.** Amino acid difference between human hemoglobins A and A_2. A. O. W. STRETTON AND V. M. INGRAM (intr. by G. M. BROWN). *Massachusetts Inst. of Technol.*

2:30 **1686.** Nature of chemical abnormality in hemoglobin G. R. L. HILL, R. T. SWENSON* AND H. C. SCHWARTZ.* *Univ. of Utah.*

2:45 **1687.** Chemical difference between normal human hemoglobin and hemoglobin I. M. MURAYAMA. *Natl. Insts. of Health.*

3:00 **1688.** Biosynthesis in vitro of hemoglobin labeled with iron-59 in sickle cell-hemoglobin C disease. L. M. KRAUS AND A. P. KRAUS (intr. by T. P. NASH, JR.). *Univ. of Tennessee.*

3:15 **1689.** Binding of oxyhemoglobin by ribonucleoprotein from a rat tumor. M. L. PETERMANN. *Sloan-Kettering Inst.*

3:30 **1690.** Protease activity of histones in deoxyribonucleoprotein. A. J. EMERY, JR. AND S. A. LESKO, JR. (intr. by G. G. RUDOLPH). *Univ. of Maryland.* (Physiol.)

3:45 **1691.** Fading of Sudan black B bound to lipoproteins. H. J. MCDONALD AND L. J. BANASZAK.* *Loyola Univ.*

Vitamins and Cofactors I

THURS. P.M.—CONGRESS, GOLD ROOM

Chairman: N. O. Kaplan

1:30 **1692.** Plasma disappearance and tissue uptake of animals injected with $Co^{60}B_{12}$. H. I. ROSENTHAL. *Washington Univ.*

1:45 **1693.** Absorption and tissue distribution of radioactive 5,6-dimethylbenzimidazole-B_{12} coenzyme. K. OKUDA* AND B. F. CHOW. *Johns Hopkins Univ.*

2:00 **1694.** Isolation and properties of new cobamide coenzyme analogues. J. I. TOOHEY* AND H. A. BARKER. *Univ. of California.*

2:15 **1695.** Thiamic acid, the nonprotein component of α-glycerophosphate dehydrogenase. J. VAN EYS (intr. by L. W. CUNNINGHAM). *Vanderbilt Univ.*

2:30 **1696.** Purification and properties of pyridoxal kinase from rat liver. D. B. MCCORMICK AND E. E. SNELL. *Univ. of California.*

2:45 **1697.** Incorporation of nitrogen atoms of adenine into riboflavin. W. S. MCNUTT. *Tufts Univ.*

3:00 **1698.** Enzymic conversion of 6,7-dimethyl-8-ribityl-2,4-dioxypteridine (6,7-D) to riboflavin. G. W. E. PLAUT. *Univ. of Utah.*

3:15 **1699.** Role of biotin in synthesis of ornithine transcarbamylase. J. RAVEL AND W. SHIVE. *Univ. of Texas.*

3:30 **1700.** Enzymatic oxidation of reduced nicotinamide ribonucleoside. H. G. WILLIAMS-ASHMAN AND S. LIAO.[4] *Univ. of Chicago.*

3:45 **1701.** Enzymatic reduction of pyridine hydroxamic acids to amides by mouse liver mitochondria. P. F. HIRSCH (intr. by H. P. KLEIN). *Brandeis Univ.*

4:00 **1702.** In vivo turnover of liver pyridine nucleotides. V. STOLLAR (intr. by P. L. MUNSON). *Brandeis Univ.*

Collagen

THURS. P.M.—BLACKSTONE, HUBBARD ROOM

Chairman: J. Gross

1:30 **1703.** Amino acids and proteins in hyperkeratinizing rodent skin. D. L. KIRK AND W. G. HOEKSTRA (intr. by P. H. PHILLIPS). *Univ. of Wisconsin.*

1:45 **1704.** Solubilization of native collagen. N. H. GRANT AND H. E. ALBURN.* *Wyeth Inst.*

2:00 **1705.** Separation and amino acid analysis of the α and β compounds of collagen. K. A. PIEZ AND E. WEISS.* *Natl. Insts. of Health.*

2:15 **1706.** Epsilon amino group of lysine, a branch point in collagen structure. M. LEVY, L. FISHMAN* AND G. CABRERA.* *New York Univ.*

2:30 **1707.** Sequence of amino acid residues in collagen. K. HANNIG (intr. by P. D. WALL). *Max Planck Inst.* (Physiol.)

2:45 **1708.** Sequence studies of peptides from an enzymatic digest of collagen. R. B. ARLINGHAUS* AND M. A. LOGAN. *Univ. of Cincinnati.*

3:00 **1709.** Synthesis and turnover of collagen and elastin in tissues of rat. K.-Y. T. KAO, D. M. HILKER AND T. H. MCGAVACK (intr. by L. SWELL). *George Washington Univ. and VA Ctr., Martinsburg.*

3:15 **1710.** Some aspects of collagen metabolism. GEORG GERBER,* GISELA GERBER,* L. H. HEMPELMANN* AND K. I. ALTMAN. *Univ. of Rochester.*

3:30 **1711.** Hydroxylation of proline and its incorporation into collagen. E. HAUSMANN (int. by W. F. NEUMAN). *Univ. of Rochester.*

3:45 **1712.** A role for ascorbic acid in the maintenance of newly-formed collagen. B. S. GOULD. *Mass. Inst. of Technol.*

4:00 **1713.** Systemic response of collagen to local inflammation. J. C. HOUCK AND R. A. JACOB. *Children's Hosp., Washington.*

4:15 **1714.** Mode of action of bacterial elastase. I. MANDL AND B. B. COHEN.* *Columbia Univ.*

Biochemistry Society Business Meeting

THURSDAY, 4:30 P.M.—CONRAD HILTON, GRAND BALLROOM

Friday Morning, April 15, 9:00 a.m.

Oxidative Phosphorylation II

FRI. A.M.—CONRAD HILTON, GRAND BALLROOM

Chairman: B. Chance

9:00 **1715.** Elucidation of a factor essential in oxidative phosphorylation of a mammalian system. L. D. WRIGHT, M. RAKOWSKA* AND R. HANSON.* *Cornell Univ.*

9:15 **1716.** Enzymatic formation of a reduced derivative of vitamin K during oxidative phosphorylation. P. J. RUSSELL* AND A. F. BRODIE. *Harvard Univ.*

9:30 **1717.** Phosphorylation coupled to electron transport initiated by quinones. E. E. JACOBS* AND F. L. CRANE. *Dartmouth Coll. and Univ. of Texas.*

9:45 **1718.** An uncoupler of oxidative phosphorylation from leucocyte mitochondria exhibiting bactericidal activity. M. FISHMAN* AND M. E. PULLMAN. *Public Health Res. Inst. of New York.*

10:00 **1719.** Evidence for dithiol function in oxidative phosphorylation based on uncoupling by arsenite. A. L. FLUHARTY* AND D. R. SANADI. *Baltimore City Hosps.*

10:15 **1720.** Stimulation of ATP hydrolysis by arsenate in phosphorylating particles C. L. WADKINS (intr. by A. L. LEHNINGER). *Johns Hopkins Univ.*

10:30 **1721.** Structural changes linked to oxidative phosphorylation in mitochondrial membranes. L. PACKER (intr. by J. H. COPENHAVER). *Dartmouth Coll. and Univ. of Texas.*

10:45 **1722.** Inhibition of dinitrophenol-stimulated mitochondrial respiration by inorganic phosphate and ADP. R. H. EISENHARDT* AND O. ROSENTHAL. *Univ. of Pennsylvania.*

11:00 **1723.** Oxidative phosphorylation in the mitochondrial metabolism of sarcosine and formaldehyde. W. R. FRISELL, N. C. SORELL* AND C. G. MACKENZIE. *Univ. of Colorado.*

11:15 **1724.** Oxidative phosphorylation with liver mitochondria in ethionine-fed rats. J. A. STEKOL, U. MODY*, E. BEDRAK,* S. KELLER* AND J. PERRY.* *Inst. for Cancer Res., Philadelphia.*

11:30 **1725.** Effects of glycerol on oxidative phosphorylation by suspensions of mitochondria after freezing. C. PRIVITERA, D. GREIFF AND M. MYERS (intr. by H. PINKERTON). *Marquette Univ. and St. Louis Univ.* (Pathol.)

11:45 **1726.** Effect of fatty acids on ATP-P_i^{32} exchange reaction associated with oxidative phosphorylation in rat liver mitochondria. A. B. FALCONE, E. SHRAGO AND R. L. MAO (intr. by M. J. JOHNSON). *Univ. of Wisconsin.*

Steroids IV

FRI. A.M.—CONRAD HILTON, NORMANDIE LOUNGE

Chairman: R. Dorfman

9:00 **1727.** Enzymatic dehydrogenation of steroid A ring. C. J. SIH AND R. E. BENNETT (intr. by J. FRIED). *Squibb Inst.*

9:15 **1728.** Mechanism of double bond saturation in Δ^4-3-ketosteroids. J. S. MCGUIRE, JR.* AND G. M. TOMKINS. *Yale Univ. and Natl. Insts. of Health.*

9:30 **1729.** Enzymatic reduction of prednisolone to cortisol. E. L. RONGONE (intr. by A. SEGALOFF). *Ochsner Med. Fndn.* (Pathol.)

9:45 **1730.** Identification in human plasma of naturally-occurring 11-dehydrocorticosterone acetates. T. E. WEICHSELBAUM AND H. W. MARGRAF.* *Washington Univ.*

10:00 **1731.** Stimulation of corticosteroid formation in vitro by serum. R. MAKOFF* AND S. ROBERTS. *Univ. of California.*

10:15 **1732.** Distribution and metabolism of corticosteroids in liver and muscle cell fractions of the rat. F. DEVENUTO,* P. C. KELLEHER* AND U. WESTPHAL. *Army Med. Res. Lab., Fort Knox.*

10:30 **1733.** Role of triphosphopyridine nucleotide in metabolism of 4-C^{14}-cortisol by muscle tissue. M. L. SWEAT. *Univ. of Utah.*

10:45 **1734.** Fate of steroid estrogens in target tissues. J. W. FLESHER,* G. N. GUPTA,* H. I. JACOBSON* AND E. V. JENSEN. *Univ. of Chicago.*

11:00 **1735.** Conjugation of estrogens by the human fetus. M. LEVITZ, G. P. CONDON* AND J. DANCIS.* *New York Univ.*

11:15 **1736.** Effect of lactose-containing diets on sterol metabolism in the rat. W. W. WELLS, S. C. ANDERSON* AND R. QUAN-MA.* *Univ. of Pittsburgh.*

Carbohydrates IV

FRI. A.M.—CONRAD HILTON, UPPER TOWER

Chairman: G. Ashwell

9:00 **1737.** Relation of fructose synthesis in the male secondary sex organs to aldose and ketose reductase activities. L. T. SAMUELS, B. W. HARDING AND T. R. MANN. *Cambridge Univ. and Univ. of Utah.*

9:15 **1738.** Effects of 2-deoxyglucose on growth and metabolism of human cell cultures. S. BARBAN (intr. by E. C. WEINBACH). *Natl. Insts. of Health.*

9:30 **1739.** Hormonal and dietary effects on hepatic carbohydrate enzymes. G. WEBER,* J. ASHMORE AND G. BANERJEE.* *Indiana Univ.*

9:45 **1740.** α-Glycerophosphate oxidation in tissues of obese hyperglycemic mice and nonobese controls. G. H. FRIED AND W. ANTOPOL. *Beth Israel Hosp., New York.* (Pathol.)

10:00 **1741.** Comparative studies of heart and liver glycogen in fasting and fed rats. J. H. ROE, J. M. BAILEY,* B. W. SMITH* AND R. R. GRAY.* *George Washington Univ.*

10:15 **1742.** Amylase in dog blood. M. SOMOGYI AND A. DOWDY.* *Jewish Hosp., St. Louis.*

10:30 **1743.** Mechanism of tolbutamide-induced hypoglycemia in the dog. J. R. LEONARDS, J. W. CRAIG,* F. I. R. MARTIN,* F. BARRY* AND M. MILLER.* *Western Reserve Univ.*

10:45 **1744.** Malonaldehyde formation and inhibition of gulonolactone oxidase in vitamin E deficiency. R. E. TRUCCO, M. P. CARPENTER,* P. B. MCCAY,* A. E. KITABCHI* AND R. CAPUTTO. *Oklahoma Med. Res. Inst.*

11:00 **1745.** Stimulatory effects of drugs on glucuronic acid pathway. J. J. BURNS, A. H. CONNEY* AND C. EVANS.* *Natl. Insts. of Health and Goldwater Mem. Hosp., New York.*

11:15 **1746.** Pathways of formation of glucose from C^{14}-pyruvate and C^{14}-lactate in humans. W. W. SHREEVE AND R. C. DEMEUTTER.* *Brookhaven Natl. Lab.*

11:30 **1747.** Mammalian thioglycosidase and sulfhydryl group function. I. GOODMAN, L. SALCE* AND R. B. HIATT.* *Columbia Univ.*

11:45 **1748.** A new metabolite of inositol synthesized by a mammalian enzyme system. S. H. LOVE (intr. by J. H. JONES). *Univ. of Pennsylvania.*

Enzymes V

FRI. A.M.—CONRAD HILTON, BEVERLY ROOM

Chairman: S. Grisolia

9:00 **1749.** Effects of ethylenediaminetetraacetic acid (EDTA) and CA^{++} on the cysteine activatable proteinase of *Cl. histolyticum*. J. D. OGLE AND P. L. MCHENRY (intr. by D. I. CRANDALL). *Univ. of Cincinnati.*

9:15 **1750.** Purification of a proteolytic enzyme from a marine bacterial species. J. M. PRESCOTT AND C. R. WILLMS (intr. by H. O. KUNKEL). *Texas A. and M.*

9:30 **1751.** Purification and characterization of porcine carboxypeptidase B. J. E. FOLK, J. A. GLADNER, W. R. CARROLL* AND K. A. PIEZ. *Natl. Insts. of Health.*

9:45 **1752.** Proteinase of human uterus. J. F. WOESSNER, JR. AND T. H. BREWER (intr. by G. T. LEWIS). *Univ. of Miami.*

10:00 **1753.** An esterase from the hog pancreas. E. GJESSING AND J. C. HARTNETT.* *Univ. of Vermont.*

10:15 **1754.** Effects of gamma radiation on ribonuclease. E. SLOBODIAN, M. FLEISHER AND S. RUBENFELD (intr. by W. TROLL). *New York Univ.*

10:30 **1755.** Hepatic fructosediphosphatase. R. WISSEL,* R. GASQUE,* L. GRIFFIN* AND W. L. BYRNE. *Duke Univ.*

10:45 **1756.** Characterization of an unusually heat resistant inorganic pyrophosphatase from *Azotobacter agilis*. E. J. JOHNSON (intr. by V. R. WILLIAMS). *Univ. of Mississippi.*

11:00 **1757.** Paper withdrawn

11:15 **1758.** Variations in enzyme stability with substrates. S. GRISOLIA, B. K. JOYCE* AND J. CARAVACA.* *Univ. of Kansas.*

11:30 **1759.** Resistance of conalbumin and its iron complex to physical and chemical treatments. P. R. AZARI* AND R. E. FEENEY. *Univ. of Nebraska.*

Nucleic Acids IV

FRI. A.M.—CONRAD HILTON, WILLIFORD ROOM

Chairman: H. Schachman

9:00 **1760.** Base interaction between oligonucleotides and long-chain polymers. M. N. LIPSETT (intr. by L. HEPPEL). *Natl. Insts. of Health.*

9:15 **1761.** Preparation and properties of polyriboguanylic acid. S. MII* AND R. C. WARNER. *New York Univ.*

9:30 **1762.** Structural determinants of RNA. W. E. C. WACKER, K. FUWA AND R. DRUYAN (intr. by F. L. HOCH). *Harvard Univ.*

9:45 **1763.** Thermodynamic aspects of RNA synthesis. P. GEORGE AND R. J. RUTMAN. *Univ. of Pennsylvania.*

10:00 **1764.** Configurational transition of TMV RNA. H. BOEDTKER (intr. by P. DOTY). *Harvard Univ.*

10:15 **1765.** Chromatographic and metabolic behavior of yeast RNA fractions. J. STARR* AND D. GOLDTHWAIT. *Western Reserve Univ.*

10:30 **1766.** Molecular weight and aggregation of DNA. L. F. CAVALIERI AND J. DEUTSCH.* *Sloan-Kettering Inst.*

10:45 **1767.** Fractionation of analogue-containing transforming principle by centrifugation in the CsCl gradient. W. SZYBALSKI, Z. OPARA-KUBINSKA AND E. EPHRATI-ELIZUR (intr. by M. HEIDELBERGER). *Rutgers Univ. and Columbia Univ.*

11:00 **1768.** Biological activity of thermally denatured transforming DNA. J. MARMUR AND D. LANE.* *Harvard Univ.*

11:15 **1769.** Replication of components of nucleohistones. F. R. FRANKEL,* J. KNAPP* AND C. F. CRAMPTON. *Univ. of Florida.*

11:30 **1770.** Unbalanced growth in *Lactobacillus leichmanii* cultivated in excess and limiting vitamin B_{12} and deoxyriboside. W. S. BECK, B. HURLOCK* AND M. LEVIN. *Harvard Univ.*

Natural Products

FRIDAY A.M.—CONRAD HILTON, ASTORIA ROOM

Chairman: F. M. Strong

9:00 **1771.** Tropolone biosynthesis—stipitatonic and stipitatic acids. C. P. THIESSEN* AND R. BENTLEY. *Univ. of Pittsburgh.*

9:15 **1772.** Biosynthesis of penicillic acid. J. KEIL (intr. by M. F. CONDERMAN). *Univ. of Pittsburgh.*

9:30 **1773.** Carotenoids of *Euglena gracilis* (Z strain). N. I. KRINSKY AND T. H. GOLDSMITH.* *Harvard Univ.*

9:45 **1774.** Extraction of glycopeptides from granulation tissue. B. ROBERT AND L. ROBERT (intr. by O. BERGEIM). *Univ. of Chicago.*

10:00 **1775.** Evidence for a new aromatic amino acid. J. E. GANDER (intr. by F. E. DEATHERAGE). *Ohio State Univ.*

10:15 **1776.** Isolation and synthesis of carnitine. M. JELLINEK* AND D. R. STRENGTH. *St. Louis Univ.*

10:30 **1777.** Isolation and enzymatic reactions of agaritine, a new amino acid derivative from agaricaceae. B. LEVENBERG (intr. by L. MILLER). *Univ. of Michigan.*

10:45 **1778.** Interaction of atropine with amino acids. S. I. OROSZLAN* AND G. D. MAENGWYN-DAVIES. *Georgetown Univ.*

11:00 **1779.** Distribution of carbon-14 in gliotoxin from serine-1-C^{14} and serine-3-C^{14}. R. J. SUHADOLNIK, A. FISCHER AND J. WILSON (intr. by R. W. MACVICAR). *Oklahoma State Univ.*

11:15 **1780.** Lipide distribution in egg yolk lipoprotein complexes. R. J. EVANS AND S. L. BANDEMER.* *Michigan State Univ.* (Nutr.)

11:30 **1781.** Lipide composition of normal human bone marrow. D. M. ABADI,* J. C. MATHIES AND P. K. LUND.* *Pacific Northwest Res. Fndn.*

11:45 **1782.** A micromethod for separation of lipids by silicic acid chromatography. E. W. LIS AND J. TINOCO (intr. by R. OKEY). *Univ. of California.* (Nutr.)

12:00 **1783.** Relation of asymmetrical dimethylguanidine to toxemia of pregnancy. M. X. SULLIVAN. *Georgetown Univ.*

Proteins V

FRI. A.M.—CONRAD HILTON, BOULEVARD ROOM

Chairman: S. Moore

9:00 **1784.** Reaction of 2-amino-1-naphthol with bovine serum albumin (BSA). S. BELMAN,* W. TROLL AND N. NELSON. *New York Univ.*

9:15 **1785.** Iodination of streptokinase (SK). E. C. DE RENZO AND P. K. SIITERI.* *Lederle Labs.*

9:30 **1786.** Photoinduced iodination of some proteins. M. SOODAK AND F. MALOOF.* *Brandeis Univ.*

9:45 **1787.** Hypobromite oxidation of amino acids and peptides. F. H. CARPENTER AND W. H. MCGREGOR.* *Univ. of California.*

10:00 **1788.** Electrolytic reduction of disulfide bonds of insulin. G. MARKUS (intr. by J. L. AMBRUS). *Roswell Park Mem. Inst.* (Physiol.)

10:15 **1789.** Reduction of disulfide bonds in proteins by sodium borohydride. A. M. CRESTFIELD,* J. SKUPIN,* S. MOORE AND W. H. STEIN. *Rockefeller Inst.*

10:30 **1790.** Native and reduced-reoxidized ribonucleases. F. H. WHITE, JR. (intr. by C. B. ANFINSEN). *Natl. Insts. of Health.*

10:45 **1791.** Papain cleavage of human and rabbit gamma globulins. F. W. PUTNAM, S. HSIAO* AND M. TAN.* *Univ. of Florida.*

11:00 **1792.** Selective chemical cleavage of peptide bonds. W. SCHNEIDER (intr. by M. L. SCOTT). *Cornell Univ.*

11:15 **1793.** Possible synthetic tertiary bonds in proteins. F. WOLD (intr. by H. E. CARTER). *Univ. of Illinois.*

11:30 **1794.** Enzymatic hydrolysis of protein groups. M. J. MYCEK AND H. WAELSCH. *Columbia Univ.*

Vitamins and Cofactors II

FRI. A.M.—CONGRESS, GOLD ROOM

Chairman: K. Folkers

9:00 **1795.** Thiobarbituric acid reaction in incubated rat liver homogenates. L. M. CORWIN (intr. by K. SCHWARZ). *Natl. Insts. of Health.*

9:15 **1796.** Antioxidant activity of vertebrate blood. A. A. BARBER (intr. by W. F. H. M. MOMMAERTS). *UCLA.*

9:30 **1797.** Eicosatrienoate in the erythrocytes of monkeys deprived of essential fatty acids. L. D. GREENBERG AND H. D. MOON. *Univ. of California.*

9:45 **1798.** Antagonistic action of vitamin A on vitamin D toxicity. I. CLARK AND C. A. L. BASSETT.* *Columbia Univ.*

10:00 **1799.** Effect of sodium glycocholate on the in vitro conversion of β-carotene to vitamin A ester. J. A. OLSON. *Univ. of Florida.*

10:15 **1800.** Rapid identification of vitamin K homologues by infrared spectroscopy. H. NOLL. *Univ. of Pittsburgh.*

10:30 **1801.** Biosynthesis of ubiquinone (coenzyme Q) in rats. H. RUDNEY AND T. SUGIMURA.* *Western Reserve Univ.*

10:45 **1802.** Biosynthesis of coenzyme Q in the rat. R. E. OLSON, G. H. DIALAMEH* AND R. BENTLEY. *Univ. of Pittsburgh.*

11:00 **1803.** Physiological loss of resistance to an antifolic acid drug in a strain of *Streptococcus faecalis*. G. H. HITCHINGS AND R. C. WOOD.* *Wellcome Res. Labs.*

11:15 **1804.** Evidence for a single enzyme reducing folate and dihydrofolate. S. F. ZAKRZEWSKI (intr. by C. A. NICHOL). *Roswell Park Mem. Inst.*

11:30 **1805.** Isolation of transformylase and pteriocases from sulfathiazole-sensitive and sulfathiazole-resistant B strains of *E. coli*. T. YOKOTA AND M. G. SEVAG.* *Univ. of Pennsylvania.*

Friday Afternoon, April 15, 1:00 p.m.

SYMPOSIUM: Recent Advances in the Biochemistry of Viruses

FRI. P.M.—CONRAD HILTON, GRAND BALLROOM

Chairman: F. C. Robbins

1:00 **1806.** Introduction. FREDERICK C. ROBBINS. *Western Reserve Univ.*

1:10 **1807.** Genetic control of protein structure in bacteriophages. C. ANFINSEN. *Natl. Insts. of Health.*

1:40 **1808.** Virus-induced biosynthesis of enzymes. S. S. COHEN. *Univ. of Pennsylvania.*

2:10 **1809.** Interaction of viral nucleic acids with mammalian cells. J. S. COLTER. *Wistar Inst. of Anat., Philadelphia.*

2:40 **1810.** Biological and biochemical basis of cell injury by animal viruses. H. GINSBERG. *Western Reserve Univ.*

3:10 **1811.** Bacteriophage with single stranded DNA. R. L. SINSHEIMER. *California Inst. of Technol.*

SYMPOSIUM: Biochemical Lesions of Carbohydrate Metabolism

FRI. P.M.—CONRAD HILTON, WILLIFORD ROOM

Chairman: Harland G. Wood

1:00 **1812.** Introduction. HARLAND G. WOOD. *Western Reserve Univ.*

1:10 **1813.** Glycogen storage disease. JOSEPH LARNER. *Western Reserve Univ.*

1:45 **1814.** Pentosuria. OSCAR TOUSTER. *Vanderbilt Univ.*

2:20 **1815.** Galactosemia. HERMAN M. KALCKAR. *Johns Hopkins Univ.*

2:55 **1816.** Lesions of polysaccharide synthesis in the *Pneumococcus*. GEORGE T. MILLS. *State Univ. of New York.*

3:30 **1817.** Glucose 6-phosphate dehydrogenase deficiency in hemolytic anemia. PAUL E. CARSON. *Univ. of Chicago.*

American Society for Pharmacology and Experimental Therapeutics

Fiftieth Annual Meeting

Monday Morning, April 11, 9:00 a.m.

CNS Stimulants

MON. A.M.—MORRISON, VENETIAN ROOM

Chairman: W. H. Funderburk

9:00 **1818.** EEG changes following intraarterial administration of pentylenetetrazol in the rabbit with basilar artery tied. GIOVANNI F. AYALA,* WILLIAM G. VAN METER* AND HAROLD E. HIMWICH. *Galesburg State Res. Hosp.*

9:15 **1819.** Action of methylated xanthines on electrically evoked afterdischarge in the neuronally isolated dog cerebral cortex. AJIT MAITI* AND EDWARD F. DOMINO. *Univ. of Michigan.*

9:30 **1820.** A new stimulant, 5-phenyl-2-imino-4-oxo oxazolidine (FWH-352). J. D. MCCOLL AND W. B. RICE.* *Frank W. Horner, Ltd.*

9:45 **1821.** Some central stimulants in mice. L. B. WITKIN, M. MAGGIO, E. O'KEEFE AND F. GALDI (intr. by A. J. PLUMMER). *Ciba.*

10:00 **1822.** Factors influencing amphetamine toxicity in aggregated mice. E. A. SWINYARD, J. T. MIYAHARA,* H. H. WOLF* AND L. D. CLARK.* *Univ. of Utah.*

10:15 **1823.** Influence of brain lesions on sensitivity of amphetamine as measured by spontaneous locomotor activity. MARTIN W. ADLER (intr. by M. E. JARVIK). *Albert Einstein Coll. of Med.*

10:30 **1824.** Comparative electroencephalographic stimulant effect in man of deanol (deaner), choline and amphetamine. C. C. PFEIFFER, L. GOLDSTEIN* AND E. H. JENNEY. *Emory Univ.*

10:45 **1825.** Stimulant effect of a deanol congener—Riker No. 566. S. T. HEALY,* E. H. JENNEY, L. GOLDSTEIN* AND C. C. PFEIFFER. *Emory Univ.*

11:00 **1826.** Indoklon as an intravenous convulsant agent. ALFRED S. C. LING,* JOHN C. KRANTZ, JR. AND ALBERT A. KURLAND.* *Univ. of Maryland.*

11:15 **1827.** Effect of methylphenidate on mouse brain free cholesterol. JON J. KABARA, JAMES T. MCLAUGHLIN AND CAROL A. RIEGEL (intr. by A. J. PLUMMER). *Univ. of Detroit.*

Drug Metabolism I and Toxicology I

MON. A.M.—PALMER HOUSE, RED LACQUER ROOM

Chairman: M. R. Warren

9:00 **1828.** Comparative hydrolysis of certain dental local anesthetics by human serum and plasma. CHARLES E. BECKER (intr. by J. ROY DOTY). *Amer. Dental Assoc.* (Biochem.)

9:15 **1829.** Alcohol-acetaldehyde dehydrogenase systems in the livers of alcohol-treated rats. R. M. DAJANI* AND J. M. ORTEN. *Wayne State Univ.* (Biochem.)

9:30 **1830.** Hyperfunction in rat liver microsomes by coramine. FRED G. BRAZDA AND RALPH W. BAUCUM.* *Louisiana State Univ.* (Biochem.)

9:45 **1831.** Thioridazine excretion patterns after single and multiple doses. EDWARD GELLER AND SAMUEL EIDUSON (intr. by MAX S. DUNN). *Univ. of California.* (Biochem.)

10:00 **1832.** Cr^{51} assay of gastrointestinal blood loss in subjects taking salicylates. RICHARD M. WATSON AND RICHARD N. PIERSON, JR. (intr. by EDWARD REISNER). *St. Luke's Hosp.* (Nutr.)

10:15 **1833.** A sensitive colorimetric assay for pyridine compounds. L. D. SASLAW* AND V. S. WARAVDEKAR. *Armed Forces Inst. of Pathol.*

10:30 **1834.** Relationship between structure and photosensitizing activity of psoralens. M. A. PATHAK AND J. H. FELLMAN (intr. by W. R. TODD). *Univ. of Oregon.* (Biochem.)

10:45 **1835.** Failure of 2,4-dinitro-o-cyclohexylphenol and its dicyclohexylamine salt to produce cataracts in chicks and ducklings. BERNARD H. ARMBRECHT AND SAMUEL H. SAVER (intr. by PAUL L. DAY). *Food and Drug Admin.* (Biochem.)

11:00 **1836.** Protective effect of aminoalkylisothioureas, their rearrangement products, mercaptoethyl and propylamines and their disulfides in the bone marrow system. D. G. DOHERTY. *Oak Ridge Natl. Lab.* (Biochem.)

11:15 **1837.** Reversing agents for alcohol toxicity. EDWIN M. LANSFORD, JR.,* IRA D. HILL* AND WILLIAM SHIVE. *Univ. of Texas.* (Biochem.)

11:30 **1838.** Biochemical changes in gossypol toxicity. R. E. DAVIES,* V. S. MOHAN* AND J. R. COUCH. *Texas Agric. Exptl. Sta.* (Biochem.)

11:45 **1839.** Toxicity of intravenous formaldehyde. M. J. ORLOFF, G. SNYDER AND C. STEVENS (intr. by R. W. VIRTUE). *Univ. of Colorado.* (Biochem.)

Cellular and Biochemical Pharmacology I

MON. A.M.—PALMER HOUSE, MONROE ROOM

Chairman: Theodore Brody

9:00 **1840.** Introductory remarks. THEODORE BRODY. *Univ. of Michigan.*

9:30 **1841.** Influence of sympathetic activity on phosphorylase in the non-perfused rat heart. MARILYN E. HESS,* JOSEPH SHANFELD* AND NIELS HAUGAARD. *Univ. of Pennsylvania.*

9:45 **1842.** Acetylcholine and cardiac glycogenolysis induced by theophylline or anoxia. NORMA H. VINCENT* AND SYDNEY ELLIS. *Woman's Med. Coll.*

10:00 **1843.** Formation of adenosine-3′,5′-phosphate (3,5-AMP) by particulate preparations of ventricular muscle. F. MURAD,* T. W. RALL* AND E. W. SUTHERLAND. *Western Reserve Univ.*

10:15 **1844.** Effect of serotonin on glycolysis in homogenates from the liver fluke *Fasciola hepatica*. TAG E. MANSOUR AND JUNE S. MENARD.* *Louisiana State Univ.*

10:30 **1845.** Blockade of the hyperglycemic action of epinephrine by dichloroisoproterenol. S. E. MAYER AND N. C. MORAN. *Emory Univ.*

10:45 **1846.** Fate of H^3-norepinephrine in animals. L. G. WHITBY,* H. WEIL-MALHERBE* AND JULIUS AXELROD. *Natl. Insts. of Health.*

11:00 **1847.** Distribution and metabolism of simultaneously infused norepinephrine-7-H^3 and epinephrine-1-C^{14}. M. GOLDSTEIN,* A. J. FRIEDHOFF,* S. POMERANTZ* AND S. B. GERTNER. *New York Univ. and Seton Hall.*

11:15 **1848.** Possible rapid biosynthesis of noradrenaline from infused dihydroxy phenylethylamine (DOPA-mine) in anesthetized dogs. WALTER M. BOOKER, DELORES EDWARDS,* ESTELA GONZALEZ* AND MABEL ROBINSON.* *Howard Univ.*

Monday Afternoon, April 11, 1:30 p.m.

Cardiovascular I

MON. P.M.—MORRISON, HOLLYWOOD ROOM

Chairman: A. J. Plummer

1:30 **1849.** Cardiovascular actions of 7(N-β-methylphenethylaminoethyl) theophylline hydrochloride (McN-R-720-11). JOHN YELNOSKY AND GEORGIA V. KIRKPATRICK (intr. by WILLIAM M. GOVIER). *McNeil Labs.*

1:45 **1850.** Effects of tris (hydroxymethyl) aminomethane (THAM) on acid-base derangements and ventricular contractile force changes elicited by periods of reduced circulating blood volume. E. E. ALDINGER,* T. D. DARBY AND W. B. THROWER.* *Med. Coll. of South Carolina.*

2:00 **1851.** Effects of tris (hydroxymethyl) aminomethane (THAM) on ventricular contractile force changes accompanying lactic acid infusion or elevation of ventilation CO_2. T. D. DARBY, E. E. ALDINGER,* W. B. THROWER* AND S. H. WESTBROOK.* *Med. Coll. of South Carolina.*

2:15 **1852.** Effects of halothane (fluothane) anesthesia on ventricular contractile force in the human and dog. W. B. THROWER,* T. D. DARBY, E. E. ALDINGER* AND J. H. SPROUSE.* *Med. Coll. of South Carolina.*

2:30 **1853.** Blood pressure effects of 3-amino-propyl-N′-methylisothiuronium bromide hydrobromide (APMT) in the cat. VICTOR DISTEFANO, PHYLLIS S. KORN* AND DANIEL E. LEARY.* *Univ. of Rochester.*

2:45 **1854.** Pharmacological properties of a new steroid alkaloid (SU-5916) isolated from conopharyngia pachysiphon. R. RUTLEDGE,* W. E. BARRETT AND A. J. PLUMMER. *Ciba.*

3:00 **1855.** Systemic and coronary hemodynamic effects of Ansiv (1-(2-methoxyphenyl)-4-(3-methoxypropyl)-piperazine phosphate) (Abbott HT 1479). G. G. ROWE, C. A. CASTILLO,* S. AFONSO,* H. P. GURTNER,* C. J. CHELIUS* AND C. W. CRUMPTON. *Univ. of Wisconsin.*

3:15 **1856.** Cardiovascular pharmacology of a hypotensive drug with direct cardiac effects. KENNETH I. COLVILLE,* MARTIN M. JACOBSON* AND CHARLES H. ELLIS. *Wellcome Res. Labs.* (Physiol.)

3:30 **1857.** Hypotensive action of phenothiazines in the unanesthetized dog. M. PORTER,* H. L. FROEHLICH,* D. ARBAKOW,* J. N. SPENCER AND H. WENDEL. *Smith, Kline and French.*

3:45 **1858.** Cardiovascular effects of tranylcypromine. J. N. SPENCER, M. PORTER,* H. L. FROEHLICH* AND H. WENDEL. *Smith, Kline and French.*

4:00 **1859.** Guanethidine in the treatment of diastolic hypertension. ALBERT N. BREST* AND JOHN H. MOYER. *Hahnemann Med. Coll. and Hosp.*

4:15 **1860.** Some physiopharmacologic properties of crotalus venoms. FINDLAY E. RUSSELL, BRYAN A. MICHAELIS* AND ROGER ENGELBERT.* *Coll. of Med. Evangelists.* (Physiol.)

Drug Metabolism II

MON. P.M.—PALMER HOUSE, RED LACQUER ROOM

Chairman: J. J. Burns

1:30 **1861.** Nicotine metabolism: formation of γ-(3′-pyridyl)-γ-methylaminobutyric acid (PMABA). H. B. HUCKER* AND J. R. GILLETTE. *Natl. Insts. of Health.*

1:45 **1862.** Methylation in the metabolism of (-)-nicotine. LENNOX B. TURNBULL,* EDWARD R. BOWMAN* AND HERBERT MCKENNIS, JR. *Med. Coll. of Virginia.*

2:00 **1863.** Isoxsuprine metabolism. JOHN A. LABUDDE (intr. by J. H. WEIKEL). *Mead Johnson.*

2:15 **1864.** Physiological distribution and metabolism of imipramine (tofranil). J. R. GILLETTE, J. V. DINGELL* AND G. P. QUINN. *Natl. Insts. of Health and Geigy Chem. Corp.*

2:30 **1865.** Metabolism of chlorguanide in man. CARL C. SMITH AND JEAN IHRIG.* *Christ Hosp. Inst.*

2:45 **1866.** Metabolism of pyridine-2-aldoxime C^{14} methiodide by liver perfusion. JAMES L. WAY, HOWARD TONG* AND RICHARD RABIDEAU.* *Univ. of Wisconsin.*

3:00 **1867.** Fluorimetric estimation of uracil nitrogen mustard and its biological disposition in the dog. L. B. MELLETT AND L. A. WOODS. *Univ. of Michigan.*

3:15 **1868.** Metabolism of sulfinpyrazone in man. PETER G. DAYTON,* LEONARDO E. SICAM,* MIGUEL LANDRAU* AND J. J. BURNS. *Natl. Insts. of Health and Goldwater Mem. Hosp.*

3:30 **1869.** Pathway of elimination of acetyl strophanthidin (AcS) in dogs. A. H. RYAN, G. ENGLER* AND H. WASSERMAN.* *Chicago Med. Sch.* (Physiol.)

3:45 **1870.** Accelerated drug metabolism in rats pretreated with drugs. A. H. CONNEY,* I. A. MICHAELSON* AND J. J. BURNS. *Natl. Insts. of Health.*

4:00 **1871.** Kinetics of pentobarbital plasma levels in the dog. R. G. WIEGAND,* R. A. KRAUSE,* K. STANISZEWSKI* AND J. D. TAYLOR. *Abbott.*

4:15 **1872.** Purification of randomly labeled tritiated barbital. C. R. BOSHART AND G. K. W. YIM (intr. by T. S. MIYA). *Purdue Univ.*

Autonomics I

MON. P.M.—PALMER HOUSE, CRYSTAL ROOM

Chairman: U. G. Trendelenburg

1:30 **1873.** Introductory remarks. U. G. TRENDELENBURG. *Harvard Univ.*

2:00 **1874.** Supersensitivity to norepinephrine after pretreatment with reserpine. W. W. FLEMING* AND U. TRENDELENBURG. *Harvard Univ.*

2:15 **1875.** Subsensitivity to certain sympathomimetics after pretreatment with reserpine. U. TRENDELENBURG AND W. W. FLEMING.* *Harvard Univ.*

2:30 **1876.** Sensitization of the nictitating membrane to sympathomimetic amines by reserpine. IAN R. INNES (intr. by M. NICKERSON). *Univ. of Manitoba.*

2:45 **1877.** Reserpine induced alterations in the reactivity of an adrenergic effector system. B. L. MIRKIN AND P. CERVONI (intr. by R. F. FURCHGOTT). *State Univ. of New York.*

3:00 **1878.** Modification of pressor effects of tyramine and tryptamine by iproniazid and reserpine. H. BURFORD* AND EDWARD J. WALASZEK. *Kansas Univ.*

3:15 **1879.** Effect of ephedrine on myocardial contractility in dogs pretreated with reserpine. JOANNE I. MOORE* AND NEIL C. MORAN. *Emory Univ.*

3:30 **1880.** Effect of reserpine on response of isolated aorta to electrical stimulation. CHARLES N. GILLIS AND CELIA M. YATES.* *Univ. of Alberta.*

3:45 **1881.** Some interactions between pressor phenylalkylamines and agents which produce a differential block of phenylalkylamines. R. A. MAXWELL, F. SCHNEIDER,* H. COOMBS,* H. POVALSKI* AND A. J. PLUMMER. *Ciba.*

4:00 **1882.** A differential effect of guanethidine on cardiovascular action of pressor phenylalkylamines in the dog. H. POVALSKI,* R. HOLLAND,* A. DANIEL* AND R. A. MAXWELL. *Ciba.*

Cellular and Biochemical Pharmacology II

MON. P.M.—PALMER HOUSE, MONROE ROOM

Chairman: Harris Busch

1:30 **1883.** Fractionation of heparin from a mast-cell tumor of the mouse. J. P. GREEN, M. ROBERTS* AND S. M. DAY.* *Yale Univ.*

1:45 **1884.** Heparin, histamine and 5-hydroxytryptamine in neoplastic mast cells in culture. S. M. DAY* AND J. P. GREEN. *Yale Univ.*

2:00 **1885.** Behavior of L-fibroblasts and sarcoma 180 cells in diffusion chambers in resistant hosts. JOHN D. GABOUREL (intr. by A. GOLDSTEIN). *Stanford Univ.*

2:15 **1886.** Denatured ethanol (Solox) hypoglycemia. W. C. CLARK, J. E. WILSON* AND H. R. HULPIEU. *Indiana Univ.*

2:30 **1887.** Alteration of carbohydrate metabolism by ethanol in the thiamine-deficient animal. JAMES E. WILSON,* WILLIAM C. CLARK AND H. R. HULPIEU. *Indiana Univ.*

2:45 **1888.** Inhibition of alcohol dehydrogenase by chlorpromazine. LIP BOEN KHOUW,* T. N. BURBRIDGE AND A. SIMON.* *Univ. of California.*

3:00 **1889.** Factors affecting ciliary activity on the gill of the mussel. EDWARD AIELLO (intr. by D. LEHR). *New York Med. Coll.*

3:15 **1890.** Metabolism and cilio-accelerator action of 5-hydroxytryptophan (5-HTP) in gill plates of mytilus and modiolus. A. S. MILTON AND R. E. GOSSELIN. *Dartmouth Coll. Med. School.*

3:30 **1891.** Effects of a new benzothiadiazine diuretic and reserpine on amines of brain and heart. I. I. A. TABACHNICK AND H. BEIL.* *Schering Corp.*

3:45 **1892.** Effect of reserpine on adrenal catecholamine and adenine nucleotides. W. R. BURACK,* N. WEINER AND P. HAGEN. *Harvard Univ.*

4:00 **1893.** Effect of chlorpromazine (CPZ) on levels of adenine nucleotides and creatine phosphate (CP) of brain. N. WEINER. *Harvard Univ.*

Intersociety Sessions

See this program, pages 426–443, for directory of Intersociety Sessions and Symposia sponsored or co-sponsored by the American Society for Pharmacology and Experimental Therapeutics.

Tuesday Morning, April 12, 9:00 a.m.

Renal and Electrolyte I

TUES. A.M.—PALMER HOUSE, WABASH ROOM

Chairman: A. E. Farah

9:00 **1894.** Effects of chlorothiazide on body electrolytes. DONALD A. SONES,* KHALIL G. WAKIM, ALAN L. ORVIS* AND WARREN F. MCGUCKIN.* *Mayo Clinic.*

9:15 **1895.** Rat aorta and muscle electrolytes following chlorothiazide administration. W. R. BEAVERS. *Univ. of Texas.*

9:30 **1896.** Distribution studies of tritium labeled hydrochlorothiazide in man. MORTON S. COMER* AND BENJAMIN CALESNICK. *Hahnemann Med. Coll.*

9:45 **1897.** Additive nature of renal effects of aminophylline and hydrochlorothiazide. BOHDAN R. NECHAY (intr. by T. H. MAREN). *Univ. of Florida.*

10:00 **1898.** Diuretic effect of some 2- and 3-substituted analogues of hydrochlorothiazide. K. HWANG, H. K. IWAMOTO, L. COEN* AND H. E. JOHNSON.* *Abbott.*

10:15 **1899.** Further pharmacological studies with benzthiazide in dogs. A. SCRIABINE,* S. Y. P'AN, D. ROWLAND* AND C. BERTRAND.* *Chas. Pfizer.*

10:30 **1900.** Pharmacology of a new benzothiadiazine diuretic. RICHARD M. TAYLOR,* JEANNE S. MERSHON* AND MARTIN M. WINBURY. *Schering Corp.*

10:45 **1901.** Diuretic responses to Naqua, a new benzothiadiazine derivative, in cases of congestive heart failure. DUNCAN E. HUTCHEON AND TERUO TAKASU.* *Seton Hall.*

11:00 **1902.** Electrolyte patterns in cirrhotic and cardiac patients after flumethiazide. F. STEIGMANN, A. DUBIN* AND S. ALVAREZ.* *Hektoen Inst.*

11:15 **1903.** Pharmacology of 3-benzyl-7-sulfamyl-6-trifluoromethyl - 2H - 3,4 - dihydro - 1,2,4 - benzothiadiazine-1,1 - dioxide (BL-H368), a new, potent diuretic agent. D. E. TISCH, J. B. HOEKSTRA AND M. H. PINDELL (intr. by H. L. DICKISON). *Bristol Labs.*

Monoamine Oxidase Inhibitors

TUES. A.M.—PALMER HOUSE, CRYSTAL ROOM

Chairman: J. A. Schneider

9:00 **1904.** Pharmacology of beta-phenylisopropylhydrazine. JOSEPH P. BUCKLEY, ANGELO R. FURGIUELE* AND WILLIAM J. KINNARD.* *Univ. of Pittsburgh.*

9:15 **1905.** Phenelzine—a neuropharmacological study. JANE FRANCES EMELE,* JOHN E. SHANAMAN* AND MARSHALL R. WARREN. *Warner-Lambert Res. Inst.*

9:30 **1906.** A new non-hydrazide monoamine oxidase inhibitor (A19120) (N-methyl-N-benzyl-2-propynylamine hydrochloride). J. D. TAYLOR, A. A. WYKES,* Y. C. GLADISH,* W. B. MARTIN* AND G. M. EVERETT. *Abbott.*

9:45 **1907.** Activity of various pharmacological agents as in vivo inhibitors of monoamine oxidase. DAVID H. TEDESCHI, RALPH E. TEDESCHI AND EDWIN J. FELLOWS. *Smith, Kline and French.*

10:00 **1908.** Route of administration of hydrazines as a determinant in the selective inhibition of brain and liver monoamine oxidase. A. HORITA. *Univ. of Washington.*

10:15 **1909.** Effect of monoamine oxidase inhibitors on diamine oxidase (histaminase). V. H. COHN, JR.* AND P. A. SHORE. *Natl. Insts. of Health.*

10:30 **1910.** Delayed arousal of reserpine-treated rabbits by monoamine oxidase inhibitors. S. SPECTOR,* R. KUNTZMAN,* C. HIRSCH* AND B. B. BRODIE. *Natl. Insts. of Health.*

10:45 **1911.** Effects of monoamine oxidase substrates and inhibitors on evoked potentials. ALVIN M. REVZIN* AND ERMINIO COSTA. *Galesburg State Res. Hosp.*

11:00 **1912.** Biochemical aspects of the action of nialamide. K. F. FINGER (intr. by J. A. SCHNEIDER). *Chas. Pfizer.*

11:15 **1913.** Effects of nialamide on the electroencephalogram. WILLIAM H. FUNDERBURK AND ANNA B. DRAKONTIDES.* *Chas. Pfizer.*

11:30 **1914.** Whole body autoradiography of C^{14}-iproniazid in mouse. V. NAIR,* A. HANNGREN,* H. LAL* AND L. J. ROTH. *Univ. of Chicago.*

11:45 **1915.** Metabolism of isocarboxazid (Marplan) in the rat. MORTON A. SCHWARTZ (intr. by LOWELL O. RANDALL). *Hoffmann-La Roche.*

Cellular and Biochemical Pharmacology III

TUES. A.M.—PALMER HOUSE, MONROE ROOM

Chairman: Julius Axelrod

9:00 **1916.** Continuous growth of mycobacterium leprae murium in cultures of mononuclear phagocytes. Y. T. CHANG (intr. by S. M. ROSENTHAL). *Natl. Insts. of Health.*

9:15 **1917.** Acetylation of polyamines by staphylococcus. S. M. ROSENTHAL AND D. T. DUBIN.* *Natl. Insts. of Health.*

9:30 **1918.** Polyamine-glutathione conjugates in *E. coli*. DONALD T. DUBIN* AND SANFORD M. ROSENTHAL. *Natl. Insts. of Health.*

9:45 **1919.** Effect of organic acids on oxidative metabolism of *E. coli*. P. DRASKÓCZY* AND N. WEINER. *Harvard Univ.*

10:00 **1920.** Effect of triethyltin on mitochondrial swelling. KENNETH E. MOORE* AND THEODORE M. BRODY. *Univ. of Michigan.*

10:15 **1921.** Effects of spermine, putrescine and cadaverine on mitochondria. CELIA W. TABOR. *Natl. Insts. of Health.*

10:30 **1922.** Activation and inhibition of trypsin by quaternary ammonium compounds. BRIAN C. W. HUMMEL (intr. by F. C. LU). *Dept. of Natl. Health and Welfare, Ottawa.*

10:45 **1923.** Origin of methyl groups of choline. J. D. WILSON,* K. D. GIBSON* AND S. UDENFRIEND. *Natl. Insts. of Health.*

11:00 **1924.** Teratogenic, uricogenic and protective effects of nicotinamide antagonists and substitutes in the chick embryo. I. H. KRAKOFF,* C. R. LACON* AND D. A. KARNOFSKY. *Sloan-Kettering.*

11:15 **1925.** Mechanisms of action of N-methyl-formamide. JOSEPH A. DIPAOLO AND RICHARD G. ROSENFIELD (intr. by C. AMBRUS). *Roswell Park Mem. Inst.*

Tuesday Afternoon, April 12, 1:30 p.m.

Cardiovascular II

TUES. P.M.—MORRISON, HOLLYWOOD ROOM

Chairman: T. R. Sherrod

1:30 **1926.** Comparison of the inotropic effects of certain pyridine compounds and their corresponding N-oxides. HOLLIS G. SCHOEPKE* AND FREDERICK E. SHIDEMAN. *Univ. of Wisconsin.*

1:45 **1927.** Some relations between electrical and mechanical activity in isolated frog ventricle strips. EMIL R. SMITH (intr. by D. S. RIGGS). *Univ. of Buffalo.*

2:00 **1928.** Frequency-force relationships in rabbit myocardium and the action of ouabain. R. S. TUTTLE (intr. by A. FARAH). *State Univ. of New York.*

2:15 **1929.** Veratrine response in the rat right ventricle strip. JOSEPH M. BENFORADO. *Univ. of Buffalo.*

2:30 **1930.** Parallel determination of dose-response curves for inotropic and chronotropic actions of substances upon isolated heart muscle. JOHN R. BLINKS (intr. by O. KRAYER). *Harvard Univ.*

2:45 **1931.** Aldosterone, lanatoside C and isolated rat heart. GEORGE SAYERS AND NEIL SOLOMON.* *Western Reserve Univ.*

3:00 **1932.** Ethylenediamine, a tool to unmask cardiac changes in the turtle resulting from environmental factors. HAROLD F. HARDMAN AND POJANA BUKHAMANA.* *Univ. of Michigan.*

3:15 **1933.** Action of digoxin and insulin on glucose transport of the myocardium. GERALD A. KIEN,* A. W. GOMOLL* AND T. R. SHERROD. *Univ. of Illinois.*

3:30 **1934.** Ratio of cardiac to emetic activity of three digitalis materials, digitoxin (Chrystodigin), digoxin (Lanoxin) and amorphous gitalin (Gitaligin) in ambulant cardiac patients. NATHANIEL T. KWIT, HARRY GOLD, ARGYRIOS J. GOLFINOS,* ELIZABETH A. GOESSEL* AND JOHN H. HUGHES.* *Cornell Univ.*

3:45 **1935.** Depression of respiration rate during digitoxin intoxication in dogs and cats. T. F. REDICK* AND P. L. MCLAIN. *Univ. of Pittsburgh.*

4:00 **1936.** Reversal of ouabain induced cardiac arrhythmias by dichloroisoproterenol. BENEDICT R. LUCCHESI (intr. by H. F. HARDMAN). *Univ. of Michigan.*

Renal and Electrolyte II

TUES. P.M.—PALMER HOUSE, WABASH ROOM

Chairman: T. H. Maren

1:30 **1937.** Two rat diuretic testing methods. VIRGIL D. WIEBELHAUS, FRANCIS T. BRENNAN, GENEVIEVE F. SOSNOWSKI AND ANDREW K. POLK (intr. by ARTHUR E. HEMING). *Smith, Kline & French.*

1:45 **1938.** Pharmacologic studies on 8-halogenated-theophyllines. ARTHUR WOLPERT,* RAYMOND M. BURGISON AND JOHN C. KRANTZ, JR. *Univ. of Maryland.*

2:00 **1939.** Nature of inhibition of carbonic anhydrase by acetazolamide. KENNETH C. LEIBMAN AND DONALD ALFORD (intr. by T. H. MAREN). *Univ. of Florida.*

2:15 **1940.** Reduction of renal effect of acetazolamide (A) in the extracellular alkalosis of K^+ depletion. THOMAS H. MAREN, OLIVER A. SORSDAHL* AND ALFRED J. DICKHAUS.* *Univ. of Florida.*

2:30 **1941.** Inhibition of mercurial diuresis by non-diuretic mercurials. TRACY B. MILLER* AND ALFRED D. FARAH. *State Univ. of New York.*

2:45 **1942.** Effects of 2-4 dinitrophenol on renal binding and excretion of mercurial compounds. E. J. CAFRUNY AND CHARLES ROSS.* *Univ. of Michigan.*

3:00 **1943.** A methyl-sulfone derivative (G-34764) of phenylbutazone with prolonged uricosuric effect. T. F. YÜ, PETER G. DAYTON,* ALEXANDER B. GUTMAN* AND J. J. BURNS. *Mt. Sinai and Goldwater Mem. Hosps. and Natl. Insts. of Health.*

3:15 **1944.** Adrenal cortical steroids as diuretics in patients with edema of hepatic and cardiac origin. HARRY GOLD, NATHANIEL T. KWIT, ARGYRIOS J. GOLFINOS,* CHARLES R. MESSELOFF,* MILTON L. KRAMER,* ELIZABETH A. GOESSEL* AND JOHN C. WEAVER.* *Cornell Univ., Hosp. for Joint Dis., Beth Israel and Lincoln Hosps.*

3:30 **1945.** Fate and metabolism of aldosterone-H^3 in adrenalectomized rats. HERBERT SHEPPARD, ALFRED A. RENZI AND NATHALIE R. BOWEN (intr. by A. J. PLUMMER). *Ciba.*

3:45 **1946.** Effect of 5-hydroxytryptamine (5-HT) on renal hemodynamics, water and electrolyte excretion. J. MAXWELL LITTLE, EMILY A. ANGELL,* WARD HUFFMAN* AND WILLIAM BROOKS.* *Bowman-Gray Sch. of Med.*

Autonomics II

TUES. P.M.—PALMER HOUSE, CRYSTAL ROOM

Chairman: S. C. Harvey

1:30 **1947.** Mechanism of action of mephentermine. CHARLES R. SWAINE,* JOHANNA PERLMUTTER* AND SYDNEY ELLIS. *Woman's Med. Coll.*

1:45 **1948.** Reduction of depressor effect of L-epinephrine. WILLIAM B. WOOD,* CLINTON B. NASH* AND ROBERT A. WOODBURY. *Univ. of Tennessee.*

2:00 **1949.** Blockade of adrenergic inhibitory responses of isolated rabbit intestine. BERT K. B. LUM AND PERRY L. RASHLEIGH (intr. by LAWRENCE PETERS). *Kansas Univ.*

2:15 **1950.** Blockade of the beta adrenergic receptor. B. LEVY* AND R. P. AHLQUIST. *Med. Coll. of Georgia.*

2:30 **1951.** Effect of TM-10, cocaine and reserpine on isoproterenol vasomotor reversal. D. T. WALZ* AND G. D. MAENGWYN-DAVIES. *Georgetown Univ.*

2:45 **1952.** Interactions of dibenzyline and DCI on the cardiovascular system and nictitating membrane. L. G. ELTHERINGTON* AND A. HORITA. *Univ. of Washington.*

3:00 **1953.** Adrenergic inhibition and the lethal effect of bacterial endotoxin in mice. R. A. MCLEAN AND L. JOE BERRY.* *Smith, Kline and French and Bryn Mawr Coll.*

3:15 **1954.** A hypertensive phase of phenoxybenzamine action. B. G. BENFEY, G. LEDOUX* AND K. I. MELVILLE. *McGill Univ.*

3:30 **1955.** Sympathetic blocking agent (bretylium) on cardiovascular responses. DOMINGO M. AVIADO AND ABDUL DIL.* *Univ. of Pennsylvania.*

3:45 **1956.** Mechanisms for terminating the action of epinephrine on the embryonic chick heart. LESLIE P. MCCARTY* AND FREDERICK E. SHIDEMAN. *Univ. of Wisconsin.*

4:00 **1957.** Estimation of infused adrenaline and noradrenaline, using the isolated perfused guinea pig heart. A. F. DeSchaepdryver,* Walter M. Booker, T. Walton,* E. Fisher* and R. Linares.* *Howard Univ.*

4:15 **1958.** Metabolism of DL-adrenaline-2-C^{14} in the cat. Norman Kirshner, Lewis Terry and D. D. Pollard (intr. by K. S. Grimson). *Duke Univ.* (Physiol.)

Cellular and Biochemical Pharmacology IV

Tues. p.m.—Palmer House, Monroe Room

Chairman: M. E. Greig

1:30 **1959.** Nucleoside metabolism by brain extracts from rat and guinea pig. D. A. Rappoport, R. Fritz and A. S. Moracezwski (intr. by R. A. Huggins). *Baylor Univ.*

1:45 **1960.** Polarography of adenosinetriphosphate. Charles D. Proctor. *Loyola Univ.*

2:00 **1961.** Adenine toxicity in mammalian cells cultured in vitro. Lewis Aronow (intr. by Avram Goldstein). *Stanford Univ.*

2:15 **1962.** Effect of parasympathomimetic stimulation of the metabolism of phosphatido-peptide. C. G. Huggins (intr. by R. M. Isenberger). *Kansas Univ.*

2:30 **1963.** Effect of citrovorum factor on the inhibition of formate incorporation in vivo induced by antifolic drugs. Anthony W. Schrecker,* J. A. R. Mead,* Mary R. Lynch* and Abraham Goldin. *Natl. Insts. of Health.*

2:45 **1964.** Enzymatic biosynthesis of melatonin. Herbert Weissbach* and Julius Axelrod. *Natl. Insts. of Health.*

3:00 **1965.** Influence of aging on intracellular distribution of carbonic anhydrase. Ralph Karler* and Dixon M. Woodbury. *Univ. of Utah.*

3:15 **1966.** Action of chlorpromazine hydrochloride (SKF No. 2601-A) on yeast hexokinase. Thomas Masurat,* Edward G. Rice,* John F. Herndon and Samuel M. Greenberg. *Smith, Kline & French.* (Nutr.)

3:30 **1967.** Structure of elastin as elucidated by elastase. Frank S. LaBella (intr. by Peter E. Dresel). *Univ. of Manitoba.*

3:45 **1968.** Hydroxyproline and collagen turnover. D. Prockop,* S. Lindstedt* and S. Udenfriend. *Natl. Insts. of Health.*

Pharmacology Society Business Meeting

Tuesday, 4:30 p.m.—Palmer House, Red Lacquer Room

Joint Session of the Federation

Tuesday, 8:00 p.m.—Conrad Hilton, Grand Ballroom

Placement Service

Exhibition Hall, fourth floor, Palmer House

Wednesday Morning, April 13, 9:00 a.m.

Psychopharmacology

WED. A.M.—PALMER HOUSE, CRYSTAL ROOM

Chairman: C. A. Stone

9:00 **1969.** Method for screening centrally-acting drugs in the intact rhesus monkey. G. A. DENEAU* AND M. H. SEEVERS. *Univ. of Michigan.*

9:15 **1970.** Effects of drugs on rate of operant behavior during gradations in fear. HERBERT BARRY, III, SYLVIA WAGNER AND NEAL E. MILLER (intr. by N. J. GIARMAN). *Yale Univ.*

9:30 **1971.** A conflict procedure for evaluation of drugs. IRVING GELLER* AND JOSEPH SEIFTER. *Wyeth Inst.*

9:45 **1972.** Drug effects on electroconvulsive inhibition of conditioned avoidance response in rats. ELIZABETH H. JENNEY. *Emory Univ.*

10:00 **1973.** Effect of a potentially ulcerogenic 'stress' on gastric secretion in the rat. RENE MENGUY (intr. by H. A. SHOEMAKER). *VA Hosp. and Univ. of Oklahoma.*

10:15 **1974.** Use of a Benzimidazole derivative with potent morphine-like properties orally as a presumptive reinforcer in conditioning of drug-seeking behavior in rats. ABRAHAM WIKLER, PHILLIP C. GREEN,* HERBERT D. SMITH* AND FRANK T. PESCOR.* *NIMH Addiction Res. Ctr.*

10:30 **1975.** A behavioral analysis of qualitative differences among phenothiazines. ROGER T. KELLEHER,* WILLIAM C. RIDDLE* AND LEONARD COOK. *Smith, Kline and French.*

10:45 **1976.** Effects of a series of psychopharmacological agents on isolation induced attack behavior in mice. LEONARD COOK AND EDWIN WEIDLEY.* *Smith, Kline and French.*

11:00 **1977.** Assessment of effects of dopa and dopamine on the conditioned emotional response in rats. JAMES M. BILSTAD* AND WILBUR M. BENSON. *Univ. of Minnesota.*

11:15 **1978.** Comparative effects of thiaxanthene analogues on the conditioned response in the rat. JOE B. NASH, GEORGE A. EMERSON, JOHN A. FAUST* AND MELVILLE SAHYUN.* *Univ. of Texas.*

11:30 **1979.** Response patterns to alcohol in baby chicks. FRANK L. SIEGEL* AND ROGER J. WILLIAMS. *Univ. of Texas.* (Biochem.)

11:45 **1980.** Use of aminophenylpyridone as an ataractic agent in outpatients. JOHN H. NODINE,* TIBOR BODI,* HOWARD A. LEVY,* PETER E. SIEGLER* AND JOHN H. MOYER. *Hahnemann Med. Coll. and Hosp.*

12:00 **1981.** Serum factor in schizophrenia. CHARLES FROHMAN, KENNETH LATHAM,* NORBERT CZAJKOWSKI,* PETER BECKETT* AND JACQUES GOTTLIEB.* *Wayne State Univ.* (Biochem.)

Cellular and Biochemical Pharmacology V

WED. A.M.—PALMER HOUSE, MONROE ROOM

Chairman: E. R. Gross

9:00 **1982.** Transformation of alpha crystallin at alkaline pH. R. A. RESNIK AND J. PAPACONSTANTINOU (intr. by E. TRAMS). *Natl. Insts. of Health and Carnegie Inst.*

9:15 **1983.** Trauma on distribution in mouse tissues of S^{35} L-cysteine. LYLE V. BECK, SARAH C. KALSER* AND VIRGINIA R. ALEXANDER.* *Univ. of Pittsburgh.*

9:30 **1984.** Crosslinking of collagen photocatalyzed by riboflavin. ELOISE KUNTZ (intr. by W. VAN WINKLE, JR.). *Ethicon.*

9:45 **1985.** Inactivation of T_2 bacteriophage after incubation with synthetic polysaccharide derivatives. B. G. YOUNG AND P. T. MORA (intr. by M. J. SHEAR). *Natl. Insts. of Health.*

10:00 **1986.** Effect of urease injections on growth of rats. W. J. VISEK AND HUNG-CHEN DANG (intr. by L. J. ROTH). *Univ. of Chicago.*

10:15 **1987.** Amine content and biosynthesis in mastocytomas and octopus salivary glands. W. G. CLARK. *Univ. of California and VA Center.*

10:30 **1988.** Effect of colchicine on taurine excretion. J. J. KOCSIS AND V. J. KOSTOS.* *Jefferson Med. Coll.*

10:45 **1989.** Spermatogenesis in furadroxyl treated rats. GEORGE L. ELLMAN,* ROBERT M. FEATHERSTONE AND V. ANDRES.* *Univ. of California.*

11:00 **1990.** Development of semen production in the guinea pig. MATTHEW FREUND (intr. by DAVID LEHR). *New York Med. Coll.*

11:15 **1991.** Metabolic aspects of postmortem changes in hypoxia. A. M. DOMINGUEZ,* J. R. HALSTEAD,* L. R. GOLDBAUM, H. I. CHINN AND F. W. LOVELL.* *Armed Forces Inst. of Pathol.*

Wednesday Afternoon, April 13, 1:30 p.m.

Cardiovascular III

WED. P.M.—MORRISON, HOLLYWOOD ROOM

Chairman: H. F. Hardman

1:30 **1992.** Mechanism of cardiac responses to carotid occlusion and to injection of pressor drugs. C. POLOSA AND G. ROSSI (intr. by R. P. AHLQUIST). *Med. Coll. of Georgia.*

1:45 **1993.** Effect of endotoxin on cardiac output and reflex dilatation in the anesthetized dog. B. ZIMMERMAN AND L. BECK (intr. by M. H. SEEVERS). *Univ. of Michigan.*

2:00 **1994.** Coronary dilator responses following reserpine in the isolated rabbit heart. K. I. MELVILLE. *McGill Univ.*

2:15 **1995.** Action of RA-8 (persantin) on coronary blood flow in the anesthetized dog. LARRY MCKNELLY* AND THEODORE R. SHERROD. *Univ. of Illinois.*

2:30 **1996.** In vivo formation of a vasodilator substance (plasma kinin) by plasmin. N. BACK. *Roswell Park Mem. Inst. and Univ. of Buffalo.*

2:45 **1997.** Influence of diuretics on vascular reactivity. A. A. RUBIN, S. C. BEAUREGARD AND B. G. FREEMAN (intr. by F. E. ROTH). *Schering.*

3:00 **1998.** Blood levels of glucose and total carbohydrate following intravenous infusions of dextran and hydroxyethylated starches. W. L. THOMPSON,* J. J. BRITTON* AND R. P. WALTON. *Med. Coll. of South Carolina.*

3:15 **1999.** Some pharmacological studies of a glutamic acid-lysine copolymer. M. FREEMAN NARROD. *Harvard Univ.*

3:30 **2000.** Complex pattern of response to coumarin drug therapy in humans. S. GOLLUB, A. W. ULIN AND W. LIKOFF (intr. by N. BACK). *Roswell Park Mem. Inst. and Univ. of Buffalo.*

3:45 **2001.** Effect of methylphenidate upon levarterenol blood levels during a constant infusion of levarterenol. MARVIN E. ROSENTHALE* AND JOSEPH R. DI PALMA. *Hahnemann Med. Coll.*

Analgesics I

WED. P.M.—PALMER HOUSE, CRYSTAL ROOM

Chairman: H. H. Keasling

1:30 **2002.** Effects of analgesics on audiogenic seizures in mice. E. MOFFAT,* R. F. KRUEGER,* R. O. PFEIFFER* AND D. M. GREEN. *Grove Labs.*

1:45 **2003.** Effects of analgesics on the mescaline scratch response in mice. R. F. KRUEGER,* D. E. LAUCK,* E. MOFFAT* AND D. M. GREEN. *Grove Labs.*

2:00 **2004.** An evaluation of analgetic agents as demonstrated by the technique of Randall and Selitto and the D'Amour-Smith rat tail-flick method. L. C. GREENE,* S. A. FERGUSON* AND H. WENDEL. *Smith, Kline & French.*

2:15 **2005.** Morphine-nalorphine alteration of tooth pulp thresholds of dogs in the alert and drowsy state. JANE E. HENG* AND EDWARD F. DOMINO. *Univ. of Michigan.*

2:30 **2006.** Effect of carisoprodol and other analgesics upon tooth pulp pain in humans. S. MARGOLIN. *Wallace Labs.*

2:45 **2007.** Effect of morphine sulfate on central respiratory mechanisms in the cat. S. H. NGAI. *Columbia Univ.*

3:00 **2008.** Modification of the central effect of morphine by quaternary ammonium compounds. LEONIDE GOLDSTEIN (intr. by CARL C. PFEIFFER). *Emory Univ.*

3:15 **2009.** Morphine hyperglycemia. M. VASSALLE (intr. by V. SYDOW). *Med. Coll. of Georgia.*

3:30 **2010.** Role of central nervous system catecholamines in morphine hyperglycemia. H. A. CAMPOS (intr. by F. E. SHIDEMAN). *Univ. of Wisconsin.*

3:45 **2011.** Antagonism between morphine and levallorphan. JOSEPH H. GANS AND ARTHUR L. ARONSON (intr. by H. H. DUKES). *Cornell Univ.* (Physiol.)

4:00 **2012.** Central and peripheral action of analgesics. CHRISTIAN BRAUN,* FRANK GUZMAN* AND ROBERT K. S. LIM. *Miles Labs.*

Pharmacology Society Dinner

WEDNESDAY, 6:30 P.M.—PALMER HOUSE, GRAND BALLROOM

(Ticket sales close Tuesday, 5:00 p.m.)

Intersociety Sessions

See Program, pages 426–443, for sessions on 'Atherosclerosis', 'Blood Clotting', 'Cytology', 'Endocrinology', 'Gastroenterology', 'Muscle', 'Neuropharmacology', and 'Tissue Culture'.

Thursday Morning, April 14, 9:00 a.m.

Toxicology II

THURS. A.M.—PALMER HOUSE, RED LACQUER ROOM

Chairman: B. J. Vos

9:00 **2013.** Effects of hyperthyroidism and hypothyroidism on the hepatotoxicity produced by CCl_4. DEANE N. CALVERT* AND THEODORE M. BRODY. *Univ. of Michigan.*

9:15 **2014.** Inactivation of endotoxic polysaccharide by tissue homogenates. VAMAN S. WARAVDEKAR, ROBERT-JOHN TRAPANI,* MAURICE LANDY* AND MURRAY J. SHEAR. *Armed Forces Inst. of Pathol. and Natl. Insts. of Health.*

9:30 **2015.** Effect of warfarin (Coumadin) sodium administration during lactation on blood coagulation of nursling rats. HAROLD BLUMBERG, HYMAN B. DAYTON* AND SAMUEL M. GORDON.* *Endo Labs.*

9:45 **2016.** A sensitive assay for thallium in urine utilizing extraction with 2-octanone. WILLIAM B. STAVINOHA,* JOE B. NASH AND GEORGE A. EMERSON. *Univ. of Texas.*

10:00 **2017.** Specific poisonous effect of hydrocarbons. PHIL TRUAN,* G. E. PRICE* AND R. H. BEUTNER. *Coll. of Osteopathic Med.*

10:15 **2018.** Toxicity of a urea filtrate fraction from a fatty feed by-product. J. I. MUNN,* S. A. KOCH* AND O. G. FITZHUGH. *Food and Drug Admin.*

10:30 **2019.** Metabolism of FD & C red No. 1: Fate of 2,4-meta-xylidine in rats. H. V. LINDSTROM (intr. by E. P. LAUG). *Food and Drug Admin.*

10:45 **2020.** Metabolism of rhodamine B (D & C red 19). JUNIUS M. WEBB (intr. by O. GARTH FITZHUGH). *Food and Drug Admin.*

11:00 **2021.** Effects of combinations of systox and methyl parathion in the dog. VIRGINIA L. ZARATZIAN,* HENRY N. FUYAT* AND O. G. FITZHUGH. *Food and Drug Admin.*

11:15 **2022.** Subacute oral toxicity of ten D & C Coal-tar colors. WALTER H. HANSEN,* DIANE C. WILSON* AND O. GARTH FITZHUGH. *Food and Drug Admin.*

11:30 **2023.** Inhibition of brain and plasma cholinesterases and paralytic effects of organic phosphate compounds. ROBERT F. WITTER AND THOMAS B. GAINES.* *PHS Commun. Dis. Ctr.* (Biochem.)

11:45 **2024.** Influence of body position on rate of uptake of CO by the human lung. CHARLES VOTAVA, JR., ALAN S. KEITT, MICHAEL MCDONALD, THEODORE C. SMITH AND JOHN RANKIN (intr. by CHARLES W. CRUMPTON). *Univ. of Wisconsin.*

Autonomics III: Cholinesterase

THURS. A.M.—PALMER HOUSE, CRYSTAL ROOM

Chairman: Laszlo Gyermek

9:00 **2025.** Stereospecificity of specific cholinesterases. B. V. RAMA SASTRY AND J. V. AUDITORE (intr. by M. T. BUSH). *Vanderbilt Univ.*

9:15 **2026.** Distribution of acetylcholinesterase (AChE) activity in human muscle. J. C. SMITH,* V. FOLDES* AND F. F. FOLDES. *Mercy Hosp. and Univ. of Pittsburgh.*

9:30 **2027.** Pharmacological activity of galanthamine and related compounds. RICHARD L. IRWIN (intr. by F. J. MACRI). *Natl. Insts. of Health.*

9:45 **2028.** Anticholinesterase actions of thiophosphonate compounds (EPN and malathion) and their combinations. O. AWAD* AND ALEXANDER G. KARCZMAR. *Loyola Univ.*

10:00 **2029.** Blocking and facilitatory effects of thiophosphonate combinations. ALEXANDER G. KARCZMAR AND K. BLACHUT.* *Loyola Univ.*

10:15 **2030.** Pharmacologic studies on a new series of anticholinesterases. R. H. ADAMSON,* D. BOATMAN* AND J. P. LONG. *State Univ. of Iowa.*

10:30 **2031.** Transitions between activation and inhibition of pseudocholinesterase. W. KALOW. *Univ. of Toronto.*

10:45 **2032.** Pharmacodynamics of oximes in organophosphorous anticholinesterase poisoning. EDMUND BAY (intr. by R. V. BROWN). *Army Chem. Ctr.*

11:00 **2033.** Protection against alkylphosphate intoxication by intraventricular injection of pyridine-2-aldoxime methiodide. HOWARD TONG* AND JAMES L. WAY. *Univ. of Wisconsin.*

11:15 **2034.** Acetylcholinesterase inhibition by tetramethylammonium and excess substrate. ARTHUR K. CHO* AND DONALD J. JENDEN. *UCLA.*

Cellular and Biochemical Pharmacology VI

THURS. A.M.—PALMER HOUSE, MONROE ROOM

Chairman: S. E. Mayer

9:00 **2035.** Dose-effect relationship between drugs affecting the sympathetic nervous system and the degree of hepatic lipid infiltration produced by carbon tetrachloride in mice. G. F. KIPLINGER,* ALICE SPENCER* AND C. J. KENSLER. *Boston Univ.*

9:15 **2036.** Effect of adrenergic blocking agents upon CCl_4-induced triglyceride deposition in rat liver. W. M. BUTLER, JR.,* H. M. MALING, B. HIGHMAN AND B. B. BRODIE. *Natl. Insts. of Health.*

9:30 **2037.** Triglyceride deposition in rat liver through derangement of fat transport by various chemical agents. H. M. MALING, M. G. HORNING,* W. M. BUTLER, JR.,* B. HIGHMAN AND B. B. BRODIE. *Natl. Insts. of Health.*

9:45 **2038.** Liver microsomal drug-enzyme activity after starvation. ROBERT L. DIXON* AND JAMES R. FOUTS. *State Univ. of Iowa.*

10:00 **2039.** Effect of prolonged stress on plasma unesterified fatty acids. SAMUEL MALLOV AND PETER WITT. *State Univ. of New York.*

10:15 **2040.** Comparative effects of MK-135 and nicotinic acid on cholesterol levels of hypercholesterolemic humans. DEWITT HENDEE SMITH AND ELIZABETH GAMAN (intr. by EDMUND W. J. DEMAAR). *New Jersey Neuropsy. Inst.*

10:30 **2041.** Oral heparin and the lipemia clearing factor. THOMAS TOFT,* JAMES SHANE* AND A. R. MCINTYRE. *Univ. of Nebraska.*

10:45 **2042.** Effect of arachidonic acid on serum lipids in man. MARTIN M. NOTHMAN AND SAMUEL PROGER.* *New England Ctr. Hosp. and Tufts Univ.*

11:00 **2043.** Effect of triparanol on BAPN-induced dissecting aneurysm and plasma lipids in the turkey. P. E. WAIBEL; R. E. BURGER,* R. A. BALL,* J. H. SAUTTER,* I. E. LIENER AND B. S. POMEROY.* *Univ. of Minnesota.* (Nutr.)

11:15 **2044.** Effect of triparanol (M/E/R/29) on excretory pathways of sterols. TAKASHI KARIYA AND THOMAS R. BLOHM (intr. by E. F. VAN MAANEN). *W. S. Merrell.*

11:30 **2045.** Distribution and excretion of radioactive triparanol (M/E/R/29) in the albino rat. ROBERT D. MACKENZIE AND THOMAS R. BLOHM (intr. by E. F. VAN MAANEN). *W. S. Merrell.*

11:45 **2046.** Chronic toxicological and pathological studies with triparanol (M/E/R/29). WILLIAM M. KING AND J. KNOX SMITH (intr. by E. F. VAN MAANEN). *W. S. Merrell.*

Thursday Afternoon, April 14, 1:30 p.m.

Cardiovascular IV

THURS. P.M.—MORRISON, HOLLYWOOD ROOM

Chairman: M. M. Winbury

1:30 **2047.** Transmembrane fluxes in ventricular fibrillation. A. H. BRIGGS* AND W. C. HOLLAND. *Univ. of Mississippi.*

1:45 **2048.** Na^{24} and K^{42} exchange in isolated chick embryo heart. R. L. KLEIN (intr. by W. C. HOLLAND). *Univ. of Mississippi.*

2:00 **2049.** Anion interaction in isolated atria. W. C. HOLLAND AND A. A. SEKUL.* *Univ. of Mississippi.*

2:15 **2050.** Ion flux in cardiac arrhythmias. R. B. ARORA (intr. by ARTHUR GROLLMAN). *All India Inst. of Med. Sci.*

2:30 **2051.** Effects of ouabain on K and Na concentrations in resting rabbit auricles. P. N. WITT AND R. S. TUTTLE.* *State Univ. of New York.*

2:45 **2052.** Effect of quinidine on electrolyte concentrations of the dog heart. VICTOR FELDMAN* AND THEODORE R. SHERROD. *Univ. of Illinois.*

3:00 **2053.** Effects of changing external Na and K concentrations, and of quinidine, on refractory period of rabbit atrium. DAVID G. TEIGER (intr. by J. TEPPERMAN). *State Univ. of New York.*

3:15 **2054.** Chronotropic responses to quinidine in dogs with complete heart block. RICHARD STADTER,* MICHAEL OLICHNEY,* JAY ROBERTS AND WALTER MODELL. *Cornell Univ.*

3:30 **2055.** Metabolic studies of experimentally induced heart failure in the guinea pig. ARNOLD SCHWARTZ* AND KWANG S. LEE. *State Univ. of New York.*

3:45 **2056.** High energy phosphate compounds in experimental heart failure produced by coarctation of the aorta. M. B. FEINSTEIN (intr. by J. BELFORD). *State Univ. of New York.*

Toxicology III

THURS. P.M.—PALMER HOUSE, RED LACQUER ROOM

Chairman: G. J. Mannering

1:30 **2057.** Effect of concentration on oral toxicity of drugs. P. F. MOORE,* G. K. W. YIM* AND T. S. MIYA. *Purdue Univ.*

1:45 **2058.** Use of computers for statistically analyzing toxicity data. OTHO EASTERDAY, PETER MUMFORD* AND LOUIS POTTER.* *Brookhaven Natl. Lab.*

2:00 **2059.** Effect of long-term chlortetracycline feeding on fertility of rats. D. W. HALLESY AND C. H. HINE (intr. by EARL H. DEARBORN). *Lederle.*

2:15 **2060.** Pharmacological study of ammoniated ethylene maleic anhydride polymer, M. W. 20,000–30,000 (AEMA 20-30). E. MIHICH, C. L. SIMPSON,* W. REGELSON* AND A. I. MULHERN.* *Roswell Park Mem. Inst.*

2:30 **2061.** Effect of xanthines on in vitro lytic action of mercurials on rabbit erythrocytes. H. MINATOYA,* F. P. LUDUENA AND LEO VON EULER.* *Sterling-Winthrop.*

2:45 **2062.** Hematologic alterations produced in the dog by administration of 2-chloro-10-(3-dimethylaminopropylidene)-thiaxanthine. HAROLD M. PECK AND SAMUEL E. MCKINNEY.* *Merck.*

3:00 **2063.** Nicotine absorption from the urinary bladder of the dog. JOSEPH F. BORZELLECA (intr. by PAUL S. LARSON). *Med. Coll. of Virginia.*

3:15 **2064.** Vitamin B_6 and isoniazid toxicity. R. W. MANTHEI. *Jefferson Med. Coll.*

3:30 **2065.** Toxicity studies of methaminodiazepoxide hydrochloride. R. E. BAGDON (intr. by L. O. RANDALL). *Hoffmann-LaRoche.*

3:45 **2066.** Toxicity of hafnyl chloride. T. J. HALEY, N. KOMESU* AND K. RAYMOND.* *Univ. of California.*

4:00 **2067.** Oral and inhalation toxicity of dipropargyl ether (DPE) and 1,6 heptadiyne (1,6 H). FREDERICK SPERLING. *Sperling Labs.*

4:15 **2068.** Mechanism of action of 3-amino-1,2,4-triazole. T. R. TEPHLY,* G. J. MANNERING AND R. E. PARKS, JR. *Univ. of Wisconsin.*

Autonomics IV

THURS. P.M.—PALMER HOUSE, CRYSTAL ROOM

Chairman: D. M. Aviado

1:30 **2069.** Assay of angiotensin on the superfused guinea pig ileum. M. BRODY AND L. BECK (intr. by M. H. SEEVERS). *Univ. of Michigan.*

1:45 **2070.** Vasopressor polypeptide substance A. EDWARD J. WALASZEK AND C. G. HUGGINS.* *Univ. of Kansas.*

2:00 **2071.** Pharmacological and cardiovascular effects of 1-methyl-lysergic acid butanolamide bimaleinate; a potent antiserotonin compound. J. H. TRAPOLD, R. MULFORD* AND D. GROHMAN.* *Sandoz Pharmaceuticals.*

2:15 **2072.** Interaction of lysergic acid diethylamide (LSD) with polypeptides which stimulate smooth muscle. CARROLL M. SMITH* AND EDWARD J. WALASZEK. *Univ. of Kansas.*

2:30 **2073.** Histamine and 'slow reacting substance' in anaphylactic reaction. N. CHAKRAVARTY AND B. UVNÄS (intr. by L. S. GOODMAN). *Univ. of Ottawa and Karolinska Inst.*

2:45 **2074.** Mechanism of inhibition of Arthus reaction by bacterial cell wall components of *E. coli*. O. H. GANLEY* AND H. J. ROBINSON. *Merck Inst.*

3:00 **2075.** In vitro actions of steroids on smooth muscle. JAMES A. SETLIFF* AND ALLAN D. BASS. *Vanderbilt Univ.*

3:15 **2076.** Peristaltic reflex of the isolated dog ureter. MARSHALL E. ATWELL AND HAROLD H. BORGSTEDT (intr. by H. C. HODGE). *Univ. of Rochester.*

3:30 **2077.** Effects of some local anesthetics, ganglion- and NMJ-blockers on the electrically stimulated isolated dog

ureter. HAROLD H. BORGSTEDT (intr. by H. C. HODGE). *Univ. of Rochester.*

3:45 **2078.** Effect of veratrine and epinephrine on polarized and depolarized artery strip. DONALD C. BRODIE AND CHARLOTTE SCHMID (intr. by H. H. ANDERSON). *Univ. of California.*

4:00 **2079.** Cyclopropane-epinephrine synergism on nictitating membrane. J. S. GRAVENSTEIN, E. T. SHERMAN AND T. W. ANDERSON (intr. by T. H. MAREN). *Univ. of Florida.*

4:15 **2080.** Tachyphylaxis as a mechanism for regulation of responses to autonomic mediators. EFRAÍN G. PARDO, JOSÉ LUIS MAGAÑA* AND ROBERTO VARGAS.* *Escuela Nacional de Med., México.*

Pharmacology Society Business Meeting

THURSDAY, 4:30 P.M.—PALMER HOUSE, RED LACQUER ROOM

Intersociety Symposia

See Program, pages 427–441, for symposia on 'Animal Behavior and Neurophysiological Correlates', 'Current Concepts in Lipid Metabolism', 'Gastroenterology', 'New and Neglected Hormones', 'Problems in Toxicology', and 'Radiation Protection and Recovery'.

Exhibits—Inspection Period

Monday: 8:00 A.M. to 5:00 P.M.

Tuesday through Thursday: 8:45 A.M. to 5:00 P.M.

Friday: 8:45 A.M. to 12:00 noon

Future Annual Meetings

Dates of Federation Annual Meetings for the next three years are: 1961: April 10–14; 1962: April 16–20; 1963: April 15–19.

Friday Morning, April 15, 9:00 a.m.

Nerve—Muscle

FRI. A.M.—MORRISON, COTILLION ROOM

Chairman: Cedric Smith

9:00 **2081.** Contractile properties of actomyosin from ryanodine and iodoacetic acid poisoned rabbits. LEONARD PROCITA. *State Univ. of New York.*

9:15 **2082.** Some effects of ryanodine on glycerol extracted rabbit psoas fibers. WILFORD L. HASLETT* AND DONALD J. JENDEN. *UCLA.*

9:30 **2083.** Contraction of frog muscles induced by small increases in potassium. C. P. KRAATZ. *Jefferson Med. Coll.*

9:45 **2084.** Effect of inactivity of muscle on electromyographic signs in experimental muscular dystrophy. J. J. FUDEMA,* Y. T. OESTER AND A. J. GATZ.* *Loyola Univ. and Med. Coll. of Georgia.*

10:00 **2085.** Action of acetylcholine on conduction in mammalian non-myelinated fibers. CHRISTINE J. ARMETT* AND J. M. RITCHIE. *Albert Einstein Coll. of Med.*

10:15 **2086.** Action of some veratrum alkaloids on isolated frog nerve. A. AKCASU,* F. HERR AND K. R. UNNA. *Univ. of Illinois.*

10:30 **2087.** Effects of succinylcholine, C_{10} and an oxamide, WIN 8078, at the neuromyal junction. K. C. KIM,* ALEXANDER G. KARCZMAR AND K. KOKETSU.* *Loyola Univ. and Univ. of Illinois.*

10:45 **2088.** Neuromuscular activity of toxiferine in unanesthetized man. B. WOLFSON,* F. F. FOLDES, H. M. BRUNN, JR.* AND O. HERRERA.* *Mercy Hosp. and Univ. of Pittsburgh.*

11:00 **2089.** Depression of mammalian neuromuscular transmission. A. S. KUPERMAN (intr. by W. F. RIKER, JR.). *Cornell Univ.*

11:15 **2090.** Effect of age on response to succinylcholine in man. ARTHUR S. KEATS AND JANE TELFORD.* *Baylor Univ.*

11:30 **2091.** Effects of puffer poison on neuromuscular transmission. J. H. FLEISHER, P. J. KILLOS AND C. S. HARRISON (intr. by J. H. WILLS). *U. S. Army Chem. Warfare Labs.*

Chemotherapy I

FRI. A.M.—PALMER HOUSE, RED LACQUER ROOM

Chairman: Avram Goldstein

9:00 **2092.** Introductory remarks. AVRAM GOLDSTEIN. *Stanford Univ.*

9:15 **2093.** E-73—an anti-tumor agent. W. S. MARSH, A. L. GARRETSON AND A. FARRELL (intr. by JEAN SCHOLLER). *Chas. Pfizer.*

9:30 **2094.** Influence of disulphonyl mannitol on neoplastic tissues in man. H. R. BIERMAN, G. J. MARSHALL* AND G. M. TIMMIS.* *Coll. of Med. Evangelists and Chester Beatty Res. Inst.*

9:45 **2095.** Nucleotides and carbohydrates as effective inhibitors of serum carcinolysis. ROBERT WILLHEIM, BENEDICT O'MALLEY AND PAUL FLUSS (intr. by J. PARFENTJEV). *Fairleigh Dickinson Univ. and Inst. of Appl. Biol.* (Immunol.)

10:00 **2096.** Carcinostatic effect of certain psychopharmacological agents. BENEDICT O'MALLEY, ROBERT WILLHEIM AND PAUL FLUSS (intr. by JOHN V. SCUDI). *Fairleigh Dickinson Univ. and Inst. of Appl. Biol.*

10:15 **2097.** Dihydrofolate reductase activities in tissues of mice with antifolate-sensitive and antifolate-resistant leukemia. D. MISRA,* S. R. HUMPHREYS,* M. FRIEDKIN, A. GOLDIN AND E. J. CRAWFORD.* *Tufts Univ. and Natl. Insts. of Health.*

10:30 **2098.** A strain of neurospora crassa requiring 2-acetylaminofluorene: genetics and alternative growth requirements. PHILIP S. THAYER, JEAN F. AMES, NICHOLAS DITULLIO AND WILLIAM WALLACE (intr. by C. J. KENSLER). *Arthur D. Little.*

10:45 **2099.** Carcinostatic effects of nitromin. T. DAS GUPTA AND A. LANE (intr. by JEAN SICE). *Chicago Med. Sch.*

11:00 **2100.** Effect of mechlorethamine on tumor glycolysis and diphosphopyridine nucleotide content. IAN M. FRASER (intr. by C. M. GRUBER). *Coll. of Med. Evangelists.*

11:15 **2101.** Biological activity of 6-ethyl-9-(1′-D-ribityl)-isoalloxazine. J. P. LAMBOOY. *Univ. of Rochester.* (Biochem.)

Analgesics II

FRI. A.M.—PALMER HOUSE, CRYSTAL ROOM

Chairman: Joseph Cochin

9:00 **2102.** Distribution of tritium-labeled nalorphine in the central nervous system of dogs. C. C. HUG, JR.* AND L. A. WOODS. *Univ. of Michigan.*

9:15 **2103.** Distribution of free N-C^{14}-methyl labeled morphine in the CNS of dogs. S. J. MULE* AND L. A. WOODS. *Univ. of Michigan.*

9:30 **2104.** Distribution of free N-C^{14}-methyl labeled levorphanol in the CNS of non-tolerant dogs, non-tolerant and tolerant monkeys. K. D. WUEPPER* AND L. A. WOODS. *Univ. of Michigan.*

9:45 **2105.** Tolerance to morphine—I: effects on catecholamines in brain and adrenal glands. E. W. MAYNERT AND G. I. KLINGMAN.* *Johns Hopkins Univ.*

10:00 **2106.** Tolerance to morphine—II: effects on catecholamines in heart, intestine and spleen. G. I. KLINGMAN* AND E. W. MAYNERT. *Johns Hopkins Univ.*

10:15 **2107.** Cross-tolerance to analgesia between phenazocine and other analgesics. CHARLES B. CARTER* AND NORMAN A. DAVID. *Univ. of Oregon.*

10:30 **2108.** Active form of the narcotic analgesic molecule. SHERWOOD H. BIERS AND GEORGE W. STEVENSON (intr. by D. J. JENDEN). *Univ. of California.*

10:45 **2109.** Effect of salicylates on tolerance of a painful stimulus. BERNARD WEISS AND VICTOR G. LATIES (intr. by L. LASAGNA). *Johns Hopkins Univ.*

11:00 **2110.** Method for evaluating weak analgetics in patients with chronic pain. C. H. FARR* AND R. W. PAYNE. *Univ. of Oklahoma.*

11:15 **2111.** Further evidence for the increased effectiveness of placebos and 'active' drugs with increased stress. HENRY K. BEECHER. *Massachusetts Gen. Hosp.*

Radiation Pharmacology

FRI. A.M.—PALMER HOUSE, MONROE ROOM

Chairman: H. C. Hodge

9:00 **2112.** Effect of anesthesia on previously irradiated small animals. T. M. YOUNG,* J. S. MEZISTRANO,* S. A. A. CARSON* AND L. E. MORRIS. *Univ. of Washington.*

9:15 **2113.** Evaluation of fat emulsion in the acute irradiation syndrome in rats. HUGO C. MOELLER AND JEROME M. VAETH (intr. by J. ALFRED RIDER). *Univ. of California.*

9:30 **2114.** Liver cell proliferation in x-irradiated rats after single and repetitive partial hepatectomy. GEORGE F. LEONG,* RITA L. PESSOTTI* AND RALPH W. BRAUER. *U. S. Naval Radiol. Def. Lab.*

9:45 **2115.** Some quantitative and qualitative studies with cell-free radiation protective spleen extracts. F. ELLINGER, N. HENDERSON,* T. A. STRIKE,* B. F. LINDSLEY* AND F. R. HENRY.* *Naval Med. Res. Inst.*

10:00 **2116.** Effect of radiation on placental transfer of P-32. J. P. FEASTER* AND G. K. DAVIS. *Univ. of Florida.* (Nutr.)

10:15 **2117.** Influence of AET upon erythropoiesis of gamma-irradiated rats. R. L. PRESTON AND A. P. RAUN (intr. by W. H. PFANDER). *Wright Air Devel. Ctr.* (Nutr.)

10:30 **2118.** Hematological response in sheep induced by blood from irradiated animals. JOSÉ SOUTO AND DONALD L. ANDERSON (intr. by M. C. BELL). *UT-AEC Agr. Res. Lab.* (Nutr.)

10:45 **2119.** Effects of combinations of protective compounds on radiation injury. B. E. HIETBRINK,* A. B. RAYMUND* AND K. P. DUBOIS. *Univ. of Chicago.*

11:00 **2120.** Antagonism of rose bengal induced photosensitivity. KEICA NISHIE* AND ALEXANDER C. KEYL. *Northwestern Univ.*

11:15 **2121.** Effect of x-irradiation on distribution of an S^{35}-labeled sulfonamide in mice and rats. MARY F. ARGUS, JUDITH F. KANE AND F. E. RAY (intr. by WILLIAM P. DEICHMANN). *Univ. of Florida.*

11:30 **2122.** P^{32} incorporation in x-irradiated HeLa and KB cells in culture. KENNETH W. FLOYD* AND R. W. WHITEHEAD. *Univ. of Colorado.*

11:45 **2123.** Tissue distribution of rare earth isotopes in mice. B. ROSOFF, E. SIEGEL, G. WILLIAMS AND H. SPENCER (intr. by V. MENKIN). *Montefiore Hosp.* (Immunol.)

Friday Afternoon, April 15, 1:00 p.m.

Cardiovascular V

FRI. P.M.—MORRISON, HOLLYWOOD ROOM

Chairman: G. A. Alles

1:00 **2124.** Cardiac arrhythmias provoked by focal application of delphinine. DAVID SCHERF, SERGE BLUMENFELD, DOGAN TANER AND MUHTAR YILDIZ (intr. by DAVID LEHR). *New York Med. Coll.*

1:15 **2125.** Mechanism of pentylenetetrazol-induced cardiac arrhythmias. R. P. BIRCHER, T. KANAI* AND S. C. WANG. *Columbia Univ.*

1:30 **2126.** Effect of coronary occlusion on the chronotropic action of epinephrine in the miniature pig. MARTIN M. WINBURY, LORRAINE M. HAUSLER,* NICHOLAS A. PRIOLI* AND LESTER ZITOWITZ.* *Schering Corp.*

1:45 **2127.** Effects of quinidine on the function of the normothermic and hypothermic heart. E. KENT CARNEY, JOHN ROSS, JR. AND THEODORE COOPER (intr. by ALBERT SJOERDSMA). *Natl. Insts. of Health.*

2:00 **2128.** Direct measurement of blood pressure of intralobular blood vessels in the rat liver. RALPH W. BRAUER, K. NAKATA* AND GEORGE F. LEONG.* *U. S. Naval Radiol. Def. Lab.*

2:15 **2129.** Effect of thiodridazine on rat liver hemodynamics. G. L. PLAA, G. J. BLACKER, E. C. MCGOUGH AND J. M. FUJIMOTO (intr. by F. W. SCHUELER). *Tulane Univ.*

2:30 **2130.** A new method for indirect recording of blood pressure in rats. B. KOROL, W. MCSHANE, L. MULIERI AND H. WEAVER (intr. by S. Y. P'AN). *Chas. Pfizer.*

2:45 **2131.** Role of adrenal corticoids in reniprival cardiovascular necrosis. DAVID LEHR AND MARILYN KRUKOWSKI.* *New York Med. Coll.*

3:00 **2132.** Mechanism of reniprival cardiovascular necrosis. MARILYN KRUKOWSKI* AND DAVID LEHR. *New York Med. Coll.*

3:15 **2133.** Electrocardiographic studies with syntocinon and pitocin during inhalation and regional anesthesia. R. T. CAPPS AND JOHN W. BERRY.* *Univ. of Washington and Univ. of Texas.*

Chemotherapy II

FRI. P.M.—PALMER HOUSE, RED LACQUER ROOM

Chairman: R. K. Richards

1:00 **2134.** Distribution of tetracyclines in the dog. KURT W. KOHN, JAMES GASKINS AND DAVID P. RALL. *Natl. Insts. of Health.*

1:15 **2135.** Effect of chloramphenicol, gamma globulin and convalescent serum on delayed deaths of mice after extensive burn injury. R. C. MILLICAN AND J. D. RUST.* *Natl. Insts. of Health.*

1:30 **2136.** Relation of plasma levels of cycloserine to oral dosage and clinical response in pulmonary tuberculosis. ISRAEL G. EPSTEIN,* K. G. S. NAIR,* MICHAEL G. MULINOS, EMANUEL HORIUCHI* AND BENJAMIN ENGARNACION.* *New York Med. Coll. and Commer. Solvents Corp.*

1:45 **2137.** Pharmacological studies on propionyl erythromycin ester lauryl sulfate. CHENG-CHUN LEE, ROBERT C. ANDERSON AND VERLIN C. STEPHENS.* *Lilly Res. Labs.*

2:00 **2138.** Intravenous plasmin in humans. WILLIAM L. WILSON AND FRANCIS NASO (intr. by LEWIS C. MILLS). *Hahnemann Med. Coll. and Hosp.*

2:15 **2139.** Mengo virus infection in bacillus calmette-guérin or zymosan treated mice. L. J. OLD,* D. A. CLARKE AND B. BENACERRAF. *Cornell Univ. and New York Univ.*

2:30 **2140.** Protein binding of octoiodofluorescein-I^{131}. EDWARD C. TOCUS* AND GEORGE T. OKITA. *Univ. of Chicago.*

2:45 **2141.** Suppression of uptake of L-arginine-U-C^{14} into nuclear proteins by 5-bis(2-chloroethyl) aminouracil. JOSEPH R. DAVIS,* GEORGE R. HONIG* AND HARRIS BUSCH. *Univ. of Illinois.*

3:00 **2142.** Effect of 5-bis(2-chloroethyl) aminouracil on incorporation of uracil-2-C^{14} into RNA in tumor-bearing rats. PAUL BYVOET* AND HARRIS BUSCH. *Univ. of Illinois.*

3:15 **2143.** Inhibition of uptake of L-arginine-U-C^{14} into anionic nuclear proteins of the Walker tumor by a number of carcinostatic agents. ALLEN LIPSEY,* SAMIR M. AMER* AND HARRIS BUSCH. *Univ. of Illinois.*

3:30 **2144.** Effect of continuous antibiotic feeding on x-irradiation mortality. W. H. LINKENHEIMER AND H. BERGER (intr. by E. L. R. STOKSTAD). *Amer. Cyanamid.* (Biochem.)

Autonomics V and Antihistaminics

FRI. P.M.—PALMER HOUSE, CRYSTAL ROOM

Chairman: J. P. Long

1:00 **2145.** Ganglionic stimulating effects of butyryl-beta-methylcholine. FREDERICK F. COWAN (intr. by T. KOPPANYI). *Georgetown Univ.*

1:15 **2146.** Ganglionic 'blockade' by nicotine. E. W. PELIKAN AND GEORGE C. GARCIA.* *Boston Univ.*

1:30 **2147.** Mydriatic half-life of a new anticholinergic as affected by dose, route and quaternization. F. M. STURTEVANT. *Smith Kline and French.*

1:45 **2148.** Parasympatholytic activity of tertiary amines and quaternary ammonium compounds. F. P. LUDUENA. *Sterling-Winthrop.*

2:00 **2149.** Bradycardia of chronic cholinergic blockade. DAVID JERRAM* AND R. P. AHLQUIST. *Med. Coll. of Georgia.*

2:15 **2150.** Evaluation of potential antiasthmatic compounds. M. KOUKIDES,* S. A. FERGUSON,* L. C. GREENE* AND H. WENDEL. *Smith Kline and French.*

2:30 **2151.** Clinical evaluation of a new antihistamine (cyproheptadine). TIBOR BODI, PETER E. SIEGLER, MARVIN GERSHENFELD, ELIZABETH B. BROWN AND JOHN H. NODINE (intr. by JOHN H. MOYER). *Hahnemann Med. Coll. and Hosp.*

2:45 **2152.** Antihistaminic activity of the D- and L-isomers of dimethpyrindene (Su-6518). W. E. BARRETT, R. RUTLEDGE,* ANN DEITRICH* AND A. J. PLUMMER. *Ciba.*

Membranes

FRI. P.M.—PALMER HOUSE, MONROE ROOM

Chairman: P. N. Witt

1:00 **2153.** Dissociation of contraction and potassium efflux in smooth muscle. LEON HURWITZ, BETTY TINSLEY* AND FRANK BATTLE.* *Vanderbilt Univ.*

1:15 **2154.** Drug effects on the radiorubidium flux through isolated rabbit mesentery. W. O. BERNDT AND R. E. GOSSELIN (intr. by J. S. ROBB). *Dartmouth Coll.*

1:30 **2155.** Effects of concentration gradients on potential drop across the small intestine of the dog. A. C. BROWN,* E. D. JACOBSON,* K. HUBEL* AND R. L. VICK. *State Univ. of New York.*

1:45 **2156.** A mechanism of permeability change in living membranes. A. M. SHANES. *Natl. Insts. of Health.*

2:00 **2157.** Inhibition of release of intracellular potassium by non-narcotic analgesic agents. FRED B. BENJAMIN. *Colgate Palmolive Co.* (Physiol.)

2:15 **2158.** A simple method of making graded collodion membranes. S. A. PEOPLES. *Univ. of California.*

2:30 **2159.** Effect of caffeine on radiocalcium movement in frog sartorius muscle. C. P. BIANCHI (intr. by A. M. Shanes). *Natl. Insts. of Health.*

2:45 **2160.** Penetration of drugs into erythrocytes. LEWIS S. SCHANKER AND PANAYOTIS A. NAFPLIOTIS.* *Natl. Insts. of Health.*

3:00 **2161.** Correlation of metabolic effects of benzalkonium chloride with its membrane effects in yeast. THOMAS G. SCHARFF (intr. by P. K. KNOEFEL). *Univ. of Louisville.*

3:15 **2162.** Active transport of uracil across the intestinal epithelium. DOMINICK J. TOCCO* AND LEWIS S. SCHANKER. *Natl. Insts. of Health.*

Federation Office

Room 505, Conrad Hilton

American Society for Experimental Pathology

Forty-fifth Annual Meeting

Monday Afternoon, April 11, 1:30 p.m.

Kidney

MON. P.M.—CONGRESS, FLORENTINE ROOM

Chairman: John M. Craig

1:30 **2163.** Kidney growth: compensatory renal growth following unilateral nephrectomy in the rat. D. S. MIYADA AND N. B. KURNICK (intr. by D. T. IMAGAWA). *Univ. of California and VA Hosp., Long Beach.*

1:45 **2164.** An immuno-pathologic study of avian nephrotoxic nephritis in the rabbit. L. R. LEVY,* J. B. SAWYER* AND I. H. LEPOW. *Western Reserve Univ.*

2:00 **2165.** Experimental acute glomerulonephritis in the rat; electron and light microscopic studies. J. CHURG, E. GRISHMAN AND W. MAUTNER (intr. by H. POPPER). *Mt. Sinai Hosp.*

2:15 **2166.** Mechanism of hyperlipemia in experimental nephrosis. RICHARD E. TRACY,* RANDOLPH H. HUGHES* AND ROBERT W. WISSLER. *Univ. of Chicago.*

2:30 **2167.** Effect of adrenalectomy, cortisone and hypophysectomy on aminonucleoside nephrosis in rats. EDWIN R FISHER AND JOHN GRUHN.* *Univ. of Pittsburgh and VA Hosp.*

2:45 **2168.** Toxic nephrosis in rabbits after the oral hypoglycemic drug phenformin (DBI). S. S. LAZARUS AND B. W. VOLK. *Isaac Albert Res. Inst. and Albert Einstein Coll. of Med.*

3:00 **2169.** Ultrastructural changes in the renal papillary tip with K^+ depletion. F. STRAUS* AND B. SPARGO. *Univ. of Chicago.*

3:15 **2170.** Nature of cellular changes in renal collecting tubules of potassium-deficient dogs, mice and rats. ASHTON B. MORRISON (intr. by I. ZEIDMAN). *Univ. of Pennsylvania.*

3:30 **2171.** Histopathology of magnesium deficiency in the rat. J. M. CRAIG, K. W. KO* AND F. X. FELLERS.* *Children's Med. Ctr. and Children's Cancer Res. Fndn.*

3:45 **2172.** Acute effect of typhoid vaccine on the renal interstitial compartment and its prevention by cortisone. IRVING GREEN (intr. by C. C. ERICKSON). *Med. Coll. of Georgia.*

4:00 **2173.** Mediation of phosphaturia in hydrocortisone-injected rats by parathormone. R. ARISON* AND H. C. STOERK. *Merck Inst.*

4:15 **2174.** Pathogenesis of experimental chronic pyelonephritis. R. COTRAN,* E. VIVALDI,* D. P. ZANGWILL* AND E. H. KASS. *Harvard Univ. and Boston City Hosp.* (Immunol.)

FILMS OF INTEREST TO PATHOLOGISTS

CONGRESS, FRANCIS I ROOM

TUES., 12:30 P.M.

(1) The Human Blood Fluke (produced in 1957). *Burroughs-Wellcome, Ltd.* Laboratory experimentation material.

(2) Hypertension 1—Regulation of Blood Pressure. NORMAN P. SCHENKER. *Pfizer International.* Demonstration experimental techniques.

WED., 12:30 P.M.

(1) Dynamics of Alcoholism. NORMAN P. SCHENKER. *Pfizer International.* Animal experimentation.

(2) Some Techniques of Tissue Section Preparation in the Pathology Laboratory (produced in 1959). J. M. B. CHURCHILL. *Natl. Committee for Careers in Medical Technology.*

THURS., 12:30 P.M.

(1) Effect of Viruses on Cells of Human Origin (produced in 1959). J. A. M. HANDY. *Parke, Davis and Company.*

(2) Phase Microscopy of Normal Living Blood Cells (produced in 1953). *Univ. of Washington.*

All films are 16 mm, color, sound

Tuesday Afternoon, April 12, 1:30 p.m.

Endotoxins, etc.

TUES. P.M.—CONGRESS, FLORENTINE ROOM

Chairman: Robert A. Good

1:30 **2175.** Effect of pregnancy on disseminated thrombosis caused by bacterial endotoxin. DONALD MCKAY, TING C. WONG* AND MICHAEL GALTON.* *Harvard Univ.*

1:45 **2176.** Effect of steroid hormones on response to bacterial endotoxin. ALAN B. COOPER* AND DONALD G. MCKAY. *Harvard Univ.*

2:00 **2177.** Effect of antigen-antibody complexes and endotoxins on leucocyte metabolism. B. STRAUSS (intr. by C. A. STETSON, JR.) *New York Univ.*

2:15 **2178.** Effect of amine oxidase inhibitors on *E. coli* endotoxin mortality in mice. R. K. AUSMAN, R. B. DAVIS, W. R. MEEKER AND D. G. MCQUARRIE (intr. by F. HOFFBAUER). *Univ. of Minnesota.*

2:30 **2179.** Adrenal gland and adrenal hormones in reactions to endotoxins. R. A. GOOD AND S. J. ZAK.* *Univ. of Minnesota.*

2:45 **2180.** Experimental shock: production of ischemic skin necrosis by an intradermal injection of endotoxin or vasopressor amine. CARL G. EVERS* AND JOEL G. BRUNSON. *Univ. of Mississippi.*

3:00 **2181.** Influence of endotoxin on the placental-fetal barrier. WILLIAM M. MCKELL,* HOVALD K. HELSETH* AND JOEL G. BRUNSON. *Univ. of Mississippi.*

3:15 **2182.** Effect of Thorotrast on vasomotor changes during the generalized Shwartzman reaction. TING C. WONG,* MICHAEL GALTON* AND DONALD MCKAY. *Harvard Univ.*

3:30 **2183.** Epinephrine lesion in hypersensitivity. ROBERT R. GATLING (intr. by JOEL G. BRUNSON). *Univ. of Mississippi.*

3:45 **2184.** Pathological and physiological studies of experimentally produced 'cystic' lesions in the lungs of rabbits. J. KLEINERMAN, E. WOLINSKY,* G. W. WRIGHT,* E. CHESTER,* W. HAROLD* AND A. SEGAL.* *St. Luke's and Met. Gen. Hosps.*

4:00 **2185.** Experimental pathogenicity of *Scopulariopsis brevicaulis v. hominis* in CFW mice. Z. T. MANKOWSKI (intr. by S. P. REIMANN). *Inst. for Cancer Res.*

Pathology Society Business Meeting

TUESDAY, 4:30 P.M.—CONGRESS, FLORENTINE ROOM

Joint Session of the Federation

TUESDAY, 8:00 P.M.—CONRAD HILTON, GRAND BALLROOM

Placement Service

Exhibition Hall, fourth floor, Palmer House

Intersociety Sessions

See program, pages 426–443, for sessions on Atherosclerosis, Blood Clotting, Cytology, Endocrinology, Gastroenterology, Muscle, Neuropharmacology and Tissue Culture, and for Intersociety symposia.

Wednesday Morning, April 13, 9:00 a.m.

Liver

WED. A.M.—CONGRESS, FLORENTINE ROOM

Chairman: W. Stanley Hartroft

9:00 **2186.** Fate of liver cells. G. W. H. SCHEPERS. *E. I. du Pont.*

9:15 **2187.** Effect of hydrocortisone on cultures of human liver cells. JOHN S. WELLINGTON* AND HENRY D. MOON. *Univ. of California.*

9:30 **2188.** Early changes in the fine structure of the hepatic cell in ethionine-fed rats. J. W. GRISHAM (intr. by W. S. HARTROFT). *Washington Univ.*

9:45 **2189.** Mitochondrial changes in ethionine intoxication. F. HUTTERER AND W. FITSCHEN (intr. by H. POPPER). *Mt. Sinai Hosp.*

10:00 **2190.** Centrolobular stainable lipid in livers of mice with gold-thioglucose-induced obesity. H. IMAI, J. S. MEYER AND H. W. SCOTT (intr. by W. S. HARTROFT). *Washington Univ.*

10:15 **2191.** Cytologic response of rat liver to N-hydroxy-2-acetylaminofluorene. HENRIK A. HARTMANN, ELIZABETH C. MILLER* AND JAMES A. MILLER.* *Univ. of Wisconsin.*

10:30 **2192.** Depression of glucose-6-phosphatase activity in carbon tetrachloride fatty liver. R. O. RECKNAGEL (intr. by F. R. MAUTZ). *Western Reserve Univ.* (Physiol.)

10:45 **2193.** Induction of liver-cell tumors in the hamster by carbon tetrachloride. B. TERRACINI AND G. DELLA PORTER (intr. by P. SHUBIK). *Chicago Med. Sch.*

11:00 **2194.** A quantitative electron microscopic approach to centrolobular hepatic alterations in initial stages of choline deficiency in rats. E. A. PORTA AND J. S. MEYER (intr. by W. S. HARTROFT). *Washington Univ.*

11:15 **2195.** Cirrhosis of 'postnecrotic' type in choline-deficient rats. W. STANLEY HARTROFT AND JOSEPH W. GRISHAM.* *Washington Univ.*

11:30 **2196.** Relation of choline deficiency to hepatic liposis and myocardial damage in mice. W. LANE WILLIAMS. *Univ. of Mississippi.*

11:45 **2197.** Experimentally induced kwashiorkor in rabbits. B. W. VOLK AND S. S. LAZARUS. *Isaac Albert Res. Inst. and Albert Einstein Coll. of Med.*

12:00 **2198.** Histopathologic changes following ferrocene (dicyclopentadienyl-iron) administration. R. J. STEIN, G. KENT AND J. D. TAYLOR (intr. by J. DE LA HUERGA). *Abbott Labs. and West Suburban Hosp.*

Wednesday Afternoon, April 13, 1:30 p.m.

Radiation

WED. P.M.—CONGRESS, GOLD ROOM

Chairman: Arthur C. Upton

1:30 **2199.** Comparative radiosensitivity of the gastrointestinal tract. RICHARD THOMASON* AND F. L. JENNINGS. *Univ. of Chicago.*

1:45 **2200.** Character of pituitary tumors induced in rats by head-neck x-irradiation. KENJIRO YOKORO* AND JACOB FURTH. *Roswell Park Mem. Inst.*

2:00 **2201.** Delayed effects in mice irradiated with partial body shielding. G. E. COSGROVE* AND A. C. UPTON. *Oak Ridge Natl. Lab.*

2:15 **2202.** Chemical protection against radiation damage. J. R. MAISIN AND D. G. DOHERTY (intr. by C. C. CONGDON). *Oak Ridge Natl. Lab.*

2:30 **2203.** Gamma globulin levels in immunized x-irradiated rabbits. MARVIN B. RITTENBERG* AND ERIC L. NELSON. *Univ. of California.*

2:45 **2204.** Dose-response studies on radiation-induced myeloid leukemia in RF mice. A. C. UPTON AND E. P. SNIFFEN.* *Oak Ridge Natl. Lab.*

3:00 **2205.** Metastatic spread of lymphosarcoma as influenced by radiation. M. R. SIKOV, B. B. COOK* AND J. E. LOFSTROM.* *Wayne State Univ.*

3:15 **2206.** Effect of total body x-irradiation on viability of metastatic tumor cells. HORACE GOLDIE, GADSON J. TARLETON,* LONNIE DEADRICK* AND ODIS STRONG.* *Meharry Med. Coll.* (Immunol.)

3:30 **2207.** Mortality and hematologic response in rhesus monkeys after total-body irradiation and intravenous therapy with homologous and autologous bone marrow. RICHARD J. MCALPINE,* JEAN K. WESTON, OSCAR J. SORENSON* AND JOAN FINZEL.* *Parke, Davis and Co.*

3:45 **2208.** Histological studies of potentiation of x-ray effect by actinomycin D on skin of normal mice. C. L. MADDOCK, B. BROWN,* G. J. D'ANGIO* AND C. TEDESCHI.* *Children's Cancer Res. Fndn.*

4:00 **2209.** Life-shortening following 800 r x-radiation to the pelvis and hind extremities of rats. J. J. GAMBINO,* L. R. BENNETT, M. S. BILLINGS* AND B. G. LAMSON. *Univ. of California.*

4:15 **2210.** Protection from lethal x-irradiation with varying doses and ages of viable homologous and isologous embryo cells. N. S. WOLF (intr. by E. T. NISHIMURA). *Northwestern Univ.*

4:30 **2211.** Early microscopic diagnosis of lymphosarcoma in situ in thymus of irradiated mice. HENRY S. KAPLAN. *Stanford Univ.*

Liver, Pancreas

WED. P.M.—CONGRESS, FLORENTINE ROOM

Chairman: Hans Popper

1:30 **2212.** Similarity of pancreatic lesions produced by excessive amounts of methionine and by ethionine. JANIS V.

KLAVINS,* NATHAN KAUFMAN AND THOMAS D. KINNEY. *Cleveland Met. Gen. Hosp. and Western Reserve Univ.*

1:45 **2213.** Effect of total pancreatectomy on experimental hemorrhagic pancreatitis in the dog. M. S. RITTENBURY* AND R. H. EGDAHL. *Med. Coll. of Virginia.*

2:00 **2214.** Pancreatic hyperplasia in rats induced by soybean meal diets. W. E. RIBELIN, A. N. BOOTH AND D. J. ROBBINS.* *Western Regional Res. Lab.*

2:15 **2215.** Pancreatic islet cell hyperplasia in hamsters treated with cortisone and chlorothiazide (Diuril). J. K. FRENKEL. *Univ. of Kansas.*

2:30 **2216.** Suppression of steroid diabetes in rats by exposure to stress. DAVID J. INGLE (intr. by DWIGHT J. INGLE). *Univ. of Chicago.*

2:45 **2217.** Dietary method for induction of cirrhosis and obesity in rats. GEORGE F. WILGRAM AND DWIGHT J. INGLE. *Univ. of Chicago and Tufts Univ.*

3:00 **2218.** Quantitative features of ductular cell reaction. E. RUBIN, F. HUTTERER AND E. J. SINGER (intr. by H. POPPER). *Mt. Sinai Hosp.*

3:15 **2219.** Electron microscopy of the hepatic ductular cell reaction. F. SCHAFFNER AND H. POPPER. *Mt. Sinai Hosp.*

3:30 **2220.** Mechanism of hepatic fibrosis. H. POPPER, F. SCHAFFNER AND F. PARONETTO.* *Mt. Sinai Hosp.*

3:45 **2221.** Effect of high fat diets on serum lipids of young healthy Korean. K. T. LEE, K. S. KIM AND Y. S. HAN (intr. by ROBERT M. O'NEAL). *Kyungpook Univ.*

4:00 **2222.** Fractionation of serum lipids in rats fed 'infarct-producing diet.' MINORU SUZUKI* AND ROBERT M. O'NEAL. *Washington Univ.*

4:15 **2223.** Effects of toxic fats in chickens. JAMES R. ALLEN (intr. by J. J. LALICH). *Univ. of Wisconsin.*

4:30 **2224.** Short-term experiments with chlorpromazine in rats: I. Histologic studies. LEON ROIZIN, M. A. KAUFMAN* AND BRUNO MILES.* *New York State Psychiat. Inst.*

Connective Tissue I

WED. P.M.—CONGRESS, FRANCIS I ROOM

Chairman: Joseph J. Lalich

1:30 **2225.** Effects of a toxic cellular component of group A streptococci on the articular tissue of rabbits. WILLIAM J. CROMARTIE, JOHN H. SCHWAB* AND JOHN T. LANGLEY.* *Univ. of North Carolina.*

1:45 **2226.** Kinetics of inflammation. E. ASCHHEIM* AND B. W. ZWEIFACH. *New York Univ.* (Physiol.)

2:00 **2227.** Antiedema effect of inflammation. D. C. BOWMAN, JR.,* D. B. DOEMLING* AND S. C. HARRIS. *Northwestern Univ. Dent. Sch.* (Physiol.)

2:15 **2228.** Development of tissue damage in cold-induced ischemia. J. PETER KULKA. *Robert B. Brigham Hosp., Peter Bent Brigham Hosp. and Harvard Univ.*

2:30 **2229.** Experimental turpentine abscesses in aggressive and nonaggressive inbred strains of mice. GEORGE M. MARTIN,* DANIEL MANRING* AND EARL P. BENDITT. *Univ. of Washington.*

2:45 **2230.** Experimental amyloidosis induced by turpentine abscesses. PAOLO MOMBELLONI,* CONRAD L. PIRANI AND HUBERT R. CATCHPOLE. *Univ. of Illinois.*

3:00 **2231.** Effect of hydrocortisone, estradiol and mast cell depletion on carrageenin granuloma. J. A. PAAR* AND EDWIN R. FISHER. *Univ. of Pittsburgh.*

3:15 **2232.** Mechanical stress and connective tissue dynamics. JACKSON J. CLEMMONS. *Western Reserve Univ.*

3:30 **2233.** Antigenicity of tropocollagen. ROY E. RITTS AND JOHN C. HOUCK. *Georgetown Univ.*

3:45 **2234.** Nitrogen balance in lathyritic rats. CEDRIC MCCRARY* AND J. L. ORBISON. *Univ. of Rochester.*

4:00 **2235.** Influence of β-aminopropionitrile feeding on collagen synthesis in rat aortas. JOSEPH J. LALICH, DOUGLAS ANGEVINE* AND HERMAN WIRKA.* *Univ. of Wisconsin.*

4:15 **2236.** Inhibitory and anti-inhibitory factors in acute and healed burn sera by tissue culture technic. M. J. ROSENBAUM,* L. F. MILLER,* B. SULLIVAN* AND S. R. ROSENTHAL. *Naval Med. Res. Unit No. 4 and Illinois Univ. Coll. of Med.*

Pathology Society Dinner

WEDNESDAY, 7:00 P.M.—CONGRESS, FLORENTINE ROOM

(*Ticket sales close Wednesday, 12:00 noon*)

Thursday Morning, April 14, 9:00 a.m.

Cardiovascular, etc.

THURS. A.M.—CONGRESS, FLORENTINE ROOM

Chairman: Alfred A. Angrist

9:00 Fourth Annual Parke, Davis Award Lecture.

10:00 **2237.** Prevention by sodium salts of stress-elicited cardiac necrosis and nephrocalcinosis, in neomycin-treated rats. S. RENAUD (intr. by E. ROBILLARD). *Univ. of Montreal.* (Physiol.)

10:15 **2238.** Wall/lumen fraction of arterioles following bilateral nephrectomy and uretero-caval anastomosis. E. E. MUIRHEAD AND J. A. STIRMAN.* *Wayne State Univ.*

10:30 **2239.** Gamma globulin studies in experimental arteritis. S. COHEN, G. OHTA, E. J. SINGER AND L. STRAUSS (intr. by H. POPPER). *Mt. Sinai Hosp.*

10:45 **2240.** Cardiac valvular changes in hypophysectomized rats compared to intact rat. A. ANGRIST, M. OKA* AND K. NAKAO.* *Albert Einstein Coll. of Med.*

11:00 **2241.** An unusual spontaneous cardiac lesion of unknown etiology in mice. R. J. M. FRY,* K. HAMILTON* AND H. LISCO. *Argonne Natl. Lab.*

11:15 **2242.** Myocardial necrosis induced by temporary occlusion of a coronary artery. R. B. JENNINGS, H. M. SOMMERS,* G. A. SMYTH,* H. A. FLACK* AND H. LINN.* *Northwestern Univ. Med. Sch.*

11:30 **2243.** Vasomotor changes in the pregnant rabbit induced by bacterial endotoxin. MICHAEL GALTON,* TING C. WONG* AND DONALD MCKAY. *Harvard Univ.*

11:45 **2244.** Cutaneous reactions in guinea pigs injected with rabbit anti-guinea pig erythrocyte serum. CHANGLING LEE* AND ISRAEL DAVIDSOHN. *Chicago Med. Sch.*

12:00 **2245.** Effects of hypoglycemia on blood brain barrier. ROBERT L. ABNEY,* CHARLES W. HAUSER* AND JOEL G. BRUNSON. *Univ. of Mississippi Med. Ctr.*

12:15 **2246.** Comparison of T-1824 and I^{131} as protein labels in study of extravascular serum protein space in dogs. ROBERT D. COYE, DONALD BLINK* AND ERLING KLOPPEDAL.* *Univ. of Wisconsin Med. Sch.*

Techniques

THURS. A.M.—CONGRESS, FRANCIS I ROOM

Chairman: Richard H. Follis, Jr.

10:00 **2247.** Morphologic histochemical studies of aminopeptidase in autopsy specimens. MITCHELL ROSENHOLTZ* AND LEE WATTENBERG. *Univ. of Minnesota Med. Sch.*

10:15 **2248.** Platelet abnormalities in pernicious anemia. J. M. RIDDLE,* J. W. REBUCK AND R. W. MONTO. *Henry Ford Hosp.*

10:30 **2249.** Effect of cirrhosis of the liver on gonadotropin content of human hypophysis. AGNES B. RUSSFIELD AND S. C. SOMMERS. *Bio-Research Inst. and Mass. Mem. Hosps.*

10:45 **2250.** Pulmonary physiology and mucus rheology in adults with cystic fibrosis. GEORGE POLGAR AND ROBERT DENTON (intr. by ROBERT D. DRIPPS). *Univ. of Pennsylvania.* (Physiol.)

11:00 **2251.** Epidermal ribonuclease. J. TABACHNICK AND R. FREED (intr. by C. WEISS). *Albert Einstein Med. Ctr.*

11:15 **2252.** Juxtaglomerular cell counts and human renal hypertension. CLAIRE TURGEON* AND SHELDON C. SOMMERS. *Massachusetts Mem. Hosps. and Boston Univ.*

11:30 **2253.** Quantitative histochemistry of the developing hamster tooth. Alkaline phosphatase and lactic dehydrogenase distribution. SJOERD L. BONTING AND KLAUS NUKI.* *Univ. of Illinois and Presbyterian-St. Luke's Hosp.* (Biochem.)

11:45 **2254.** Metabolic thyroiditis in the hamster. R. H. FOLLIS, JR. *Armed Forces Inst. of Pathol.*

12:00 **2255.** Neutron activation determination of manganese in body fluids. P. S. PAPAVASILIOU* AND G. C. COTZIAS. *Brookhaven Natl. Lab.*

12:15 **2256.** Pathogenesis of fever. Preliminary purification of leucocytic pyrogen. GALE W. RAFTER, ROBERT D. COLLINS AND W. BARRY WOOD, JR. (intr. by JOHN L. SHAPIRO). *Johns Hopkins Univ.*

Thursday Afternoon, April 14, 1:30 p.m.

Viruses, etc.

THURS. P.M.—CONGRESS, FLORENTINE ROOM

Chairman: Frederik B. Bang

1:30 **2257.** Effects of environmental temperature and humidity on spread of virus in the respiratory tract. A. M. BAETJER, R. H. LOWRY* AND F. B. BANG. *Johns Hopkins Univ.* (Physiol.)

1:45 **2258.** Responses of two human strains of epidermoid carcinoma (cervix) grown on collagen to E.E.E. virus. G. O. GEY,* F. B. BANG, M. SVOTELIS* AND M. FOARD.* *Johns Hopkins Univ.*

2:00 **2259.** Thermoresistant influenza A virus. ROBERT A. SIEM,* HENRY LY,* DAVID T. IMAGAWA AND JOHN M. ADAMS. *Univ. of California.*

2:15 **2260.** Electron microscopic study of canine distemper inclusions. JUTARO T. TAWARA,* JOSEPH R. GOODMAN,* DAVID T. IMAGAWA AND JOHN M. ADAMS. *Univ. of California.*

2:30 **2261.** Immunological relationships of measles, distemper and rinderpest. DAVID T. IMAGAWA AND JOHN M. ADAMS. *Univ. of California.*

2:45 **2262.** Response of ciliated and mucous epithelium to

XUM

Newcastle disease virus. F. B. Bang and M. Foard.* *Johns Hopkins Univ.*

3:00 **2263.** Correlated microscopic and microspectrophotometric studies of DNA of tissues from mice and hamsters infected with polyoma virus. Cecilie Leuchtenberger, Sarah Stewart,* Rudolf Leuchtenberger* and Bernice Eddy.* *Children's Cancer Res. Fndn., Western Reserve Univ. and Natl. Insts. of Health.*

3:15 **2264.** Conditions determining infection of migrating skin epithelium of rabbits with Shope papilloma virus. Charles Breedis. *Univ. of Pennsylvania.*

3:30 **2265.** Concerning the nature of the induction of arginase by the Shope papilloma virus. Stanfield Rogers. *Univ. of Tennessee Mem. Res. Ctr.*

3:45 **2266.** A factor present in adenovirus suspensions capable of modifying erythrocyte receptors. Julius A. Kasel, Wallace P. Rowe, and John L. Nemes (intr. by R. E. Ritts, Jr.) *Natl. Insts. of Health and Georgetown Univ.*

4:00 **2267.** A hemin-requiring plasmodial slime mold. Jacqueline Kelley,* J. W. Daniel,* and H. P. Rusch. *Univ. of Wisconsin.*

4:15 **2268.** Host influence on psittacosis growth. Jack Litwin (intr. by J. W. Moulder). *Univ. of Chicago.* (Biochem.)

Connective Tissue II

Thurs. p.m.—Congress, Francis I Room

Chairman: John P. Ayer

1:30 **2269.** Isolation and physical properties of single elastic fibers. Robert W. Carton and John Dainauskas (intr. by George M. Hass). *Presbyterian-St. Luke's Hosp.*

1:45 **2270.** Serum elastase inhibitor. Robert B. Schneider* and Roy L. Walford. *Univ. of California.*

2:00 **2271.** Elastase production by actinomyces. A. J. Sbarra,* R. F. Gilfillan* and W. A. Bardawil. *St. Margaret's Hosp. and Tufts Univ.*

2:15 **2272.** An elastin elastase serum inhibitor system: end product analysis. R. F. Gilfillan,* A. J. Sbarra* and W. A. Bardawil. *St. Margaret's Hosp. and Tufts Univ.*

2:30 **2273.** Amino acid composition of aortic elastin isolated by the use of formic acid. John P. Ayer and Laila Galins.* *New England Deaconess Hosp.*

2:45 **2274.** Nature of calcium-elastin binding. Shiu Yeh Yu* and Herman T. Blumenthal. *Jewish Hosp.*

3:00 **2275.** Calcium metabolism of perfused extremities of dogs. Uriel Barzel, Stanley Fell, Joseph Samachson and Herta Spencer (intr. by Gabriel Godman). *Montefiore Hosp.*

3:15 **2276.** Reactivation in vivo and in vitro of iodoacetamide-treated papain. G. Weissmann,* J. L. Potter,* R. T. McCluskey and L. Thomas. *New York Univ.*

3:30 **2277.** Distribution in the rabbit of intravenously administered papain. J. L. Potter,* G. Weissmann,* R. T. McCluskey and L. Thomas. *New York Univ.*

3:45 **2278.** Papain-induced dyschondroplasia in suckling rats. Leonard P. Merkow* and Joseph J. Lalich. *Univ. of Wisconsin.*

4:00 **2279.** Urinary acid mucopolysaccharides in hereditary-deforming chondrodysplasia (diaphysial aclasis). Andrew E. Lorincz (intr. by R. T. Smith). *Univ. of Florida.*

4:15 **2280.** Distribution in mammalian tissues of an enzyme synthesizing glucosamine 6-phosphate. Robert E. Priest. *Univ. of Washington.*

Press Room

Private Dining Room #2, third floor, Conrad Hilton

Intersociety Sessions

See program, pages 426–443, for sessions on Atherosclerosis, Blood Clotting, Cytology, Endocrinology, Gastroenterology, Muscle, Neuropharmacology and Tissue Culture, and for Intersociety symposia.

Friday Morning, April 15, 9:00 a.m.

Transplantation

FRI. A.M.—CONGRESS, FLORENTINE ROOM

Chairman: Helene Toolan

9:00 **2281.** Parabiosis induced tolerance. RONALD D. GUTTMANN AND J. BRADLEY AUST. *Univ. of Minnesota.*

9:15 **2282.** Modification of the homograft response in mice by ascites. ROBERT E. MCCARTHY (intr. by G. E. FOLEY). *Children's Cancer Res. Fndn. and Harvard Univ.*

9:30 **2283.** Pathogenesis and pathology of 'runt' disease in rats. V. DEFENDI, D. STEINMULLER, R. E. BILLINGHAM AND W. K. SILVERS (intr. by D. R. COMAN). *Wistar Inst.*

9:45 **2284.** Protein metabolism in the rat-mouse chimera. W. FRIEDBERG AND V. JENKINS (intr. by A. C. UPTON). *Oak Ridge Natl. Lab.*

10:00 **2285.** Production of a 'mongolian-idiot' like abnormality in hamsters. HELENE TOOLAN. *Sloan-Kettering Inst.*

10:15 **2286.** Effect of 6-mercaptopurine on the homograft response in rabbits. W. R. MEEKER AND R. L. VARCO (intr. by R. A. GOOD). *Univ. of Minnesota.*

10:30 **2287.** Influence of 6-mercaptopurine on survival of homologous rabbit kidney transplants. P. NATHAN,* E. GONZALEZ,* H. PESCOVITZ,* R. FOWLER, JR.* AND B. F. MILLER. *May Inst. for Med. Res. of Jewish Hosp. of Cincinnati and Univ. of Cincinnati.*

10:45 **2288.** Prevention of experimental allergic encephalomyelitis with 6-mercaptopurine and nitrogen mustard. L. HOYER,* R. A. GOOD AND R. M. CONDIE.* *Univ. of Minnesota.*

11:00 **2289.** Effect of donor and host irradiation on renal homograft reaction. C. F. ZUKOSKI,* B. T. JACKSON,* R. H. EGDAHL AND D. M. HUME. *Med. Coll. of Virginia.*

11:15 **2290.** Absence of classical homologous tissue reactions following transfusions of blood from multiple donors other than donors of grafts. R. H. ANDRESEN, C. W. MONROE,* G. M. HASS, D. A. MADDEN* AND S. PAPADOPOULOS.* *Presbyterian-St. Luke's Hosp.*

11:30 **2291.** Persistence of classical homologous tissue reactions during pseudopregnancy. V. TRUCHLY,* D. A. MADDEN,* S. PAPADOPOULOS* AND R. ANDRESEN. *Presterian-St. Luke's Hosp.*

11:45 **2292.** Lymphatic tissue reaction in normal mice given foreign bone marrow. C. C. CONGDON. *Oak Ridge Natl. Lab.*

Visible Index and Message Center

Consult the visible index of registrants to locate your friends—Registration Area, Conrad Hilton.

Future Annual Meetings

Dates of Federation Annual Meetings for the next three years are: 1961: April 10–14; 1962: April 16–20; 1963: April 15–19.

American Institute of Nutrition

Twenty-fourth Annual Meeting

Monday Morning, April 11, 9:00 a.m.

Clinical Nutrition I: Proteins and Amino Acids

MON. A.M.—CONRAD HILTON, WALDORF ROOM

Chairman: Grace Goldsmith

9:00 **2293.** Specific gravity and total body water in men aged 60 or over. J. H. FRYER (intr. by L. A. MAYNARD). *Cornell Univ.*

9:15 **2294.** Body composition changes in men during weight loss on a protein-deficient diet. J. MANNIELLO, E. HARMUTH AND J. H. FRYER (intr. by H. H. WILLIAMS). *Cornell Univ.*

9:30 **2295.** Utilization of protein by college women on a 10-gram protein diet before and during stepwise supplementation with beef or haddock. PELA F. BRAUCHER (intr. by GEORGIAN ADAMS). *Univ. of Maryland.*

9:45 **2296.** Use of nitrogen/creatinine ratios in random urine specimens to estimate dietary protein. R. C. POWELL, E. M. BAKER, II AND I. C. PLOUGH (intr. by JOHN B. YOUMANS). *U.S. Army Med. Res. and Nutr. Lab.*

10:00 **2297.** Nitrogen balance response of young men to changes in quality of dietary protein. H. L. RICE,* N. W. FLODIN AND A. C. SHUMAN.* *E. I. du Pont and Shuman Chem. Lab.*

10:15 **2298.** Comparison of essential amino acid patterns. JOHNNIE H. WATTS, MARIAN E. SWENDSEID, CHERYL L. HARRIS AND STEWART G. TUTTLE (intr. by HELEN G. OLDHAM). *Univ. of California.*

10:30 **2299.** Effects of added amino acids or sugars on the pattern of absorption of amino acids from an isolated ileal loop in man. ALINE U. ORTEN, N. S. GIMBEL* AND A. H. SMITH. *Wayne State Univ. Coll. of Med.*

10:45 **2300.** Methionine requirements of men over 60. STEWART G. TUTTLE,* MARIAN E. SWENDSEID AND SAMUEL H. BASSETT.* *VA Hosp. and Univ. of California.* (Biochem.)

11:00 **2301.** Leucine-induced hypoglycemia in certain children. FRANCIS J. BEHAL AND NANCY THORNTON (intr. by SAMUEL A. SINGAL). *Med. Coll. of Georgia.*

11:15 **2302.** Clinical trials of water-soluble chemically defined diets. R. B. COUCH,* D. M. WATKIN, R. R. SMITH,* L. E. ROSENBERG,* M. WINITZ,* S. M. BIRNBAUM,* M. C. OTEY* AND J. P. GREENSTEIN.* *Natl. Insts. of Health.*

11:30 **2303.** Investigations of a new familial syndrome characterized by aminoaciduria and dwarfism. L. E. ROSENBERG,* D. M. WATKIN AND P. S. MUELLER.* *Natl. Insts. of Health.* (Physiol.)

11:45 **2304.** Treatment of a case of maple syrup urine disease. L. E. HOLT, JR., SELMA E. SNYDERMAN, JOSEPH DANCIS* AND PATRICIA M. NORTON.* *New York Univ. Coll. of Med.*

Animal Nutrition

MON. A.M.—CONRAD HILTON, BEVERLY ROOM

Chairman: Charles Denton

RUMINANT METABOLISM

9:00 **2305.** Precursors of short-chain fatty acids in the rumen of sheep fed purified diets. DARRELL VAN CAMPEN* AND GENNARD MATRONE. *North Carolina State Coll.*

9:15 **2306.** Acetoacetate and beta-hydroxybutyrate utilization in sheep. W. H. PFANDER AND R. L. REID. *Univ. of Missouri and Commonwealth Sci. Ind. Res. Organ.*

9:30 **2307.** Fermentation of alfalfa hay by rumen microorganisms in vitro. Carbon dioxide, methane and heat production. T. V. HERSHBERGER AND E. W. HARTSOOK (intr. by R. W. SWIFT). *Pennsylvania State Univ.*

POULTRY NUTRITION

9:45 **2308.** Single and combined additions of arsanilic acid, furazolidone and reserpine in a laying hen diet. C. W. CARLSON. *South Dakota State Coll.*

10:00 **2309.** Effect of microbial contamination on requirement of chicks for certain nutrients. HARDY M. EDWARDS AND FRANK M. BOYD.* *Univ. of Georgia.*

10:15 **2310.** Reproduction studies in the mature fowl as affected by corn, soybean oil meal, corn steepwater and corn ash. J. R. COUCH, C. R. CREGER* AND R. E. DAVIES.* *Texas Agric. Expt. Sta.*

10:30 **2311.** B-vitamin deficiency in the mature turkey hen. T. M. FERGUSON, R. L. ATKINSON,* R. H. MITCHELL,* M. L. JONES* AND J. R. COUCH. *Texas A & M Coll.*

10:45 **2312.** Effect of nutrient density and restricted nutrient intake on diet utilization by the laying hen. SHERMAN P. TOUCHBURN AND EDWARD C. NABER (intr. by W. E. KRAUSS). *Ohio Agric. Expt. Station.*

Monday Afternoon, April 11, 1:30 p.m.

Clinical Nutrition II: Vitamins and General

MON. P.M.—CONRAD HILTON, WALDORF ROOM

Chairman: William J. Darby

VITAMINS

1:30 **2313.** Effect of vitamin B_{12} and ascorbic acid in the utilization of dietary protein in 20 young women. ELLEN H. MORSE, ELNA E. DANIELS, FLORENCE A. HANLON AND GEORGIANNA R. WALKER (intr. by HELEN S. MITCHELL). *Univ. of Connecticut.*

1:45 **2314.** Xanthurenic aciduria not corrected by pyridoxine. M. H. SIGLER, T. W. SHEEHY, R. SANTINI AND M. E. RUBINI (intr. by JOHN B. YOUMANS). *U.S.A. Tropical Res. Med. Lab. and Univ. of Puerto Rico.*

2:00 **2315.** Intake and urinary excretion of folic acid by 36 preadolescent girls. JUNE K. PACE, LARUE B. STIER, DORIS D. TAYLOR AND PATRICIA A. GOODMAN (intr. by ELSIE Z. MOYER). *U.S. Dept. of Agric.*

2:15 **2316.** Folic acid requirements in man. T. W. SHEEHY, M. E. RUBINI, M. H. SIGLER, E. PEREZ-SANTIAGO, R. BACO-DAPENA AND R. SANTINI (intr. by JOHN B. YOUMANS). *U.S.A. Tropical Res. Med. Lab. and Univ. of Puerto Rico.*

2:30 **2317.** Human requirement for vitamin B_6. IRVIN C. PLOUGH (intr. by H. E. SAUBERLICH). *U.S. Army Med. Res. and Nutr. Lab., Fitzsimons Army Hosp.*

2:45 **2318.** Excretion of N-methyl-4-pyridone-5-carboxamide in both human and monkey urine. M. L. WU CHANG. *Univ. of Illinois.*

GENERAL

3:00 **2319.** A low-cost protein rich vegetable mixture for human consumption. NEVIN S. SCRIMSHAW, RICARDO BRESSANI, MOISÉS BÉHAR,* DOROTHY WILSON* AND GUILLERMO ARROYAVE. *INCAP, Guatemala.*

3:15 **2320.** Algae feeding in humans: acceptability, digestibility and toxicity. M. E. MCDOWELL, R. C. POWELL, E. M. NEVELS, J. H. SELLARS, AND N. F. WITT (intr. by JOHN B. YOUMANS). *U.S. Army Med. Res. and Nutr. Lab.*

3:30 **2321.** Energy output of patients following surgery. STANLEY LEVEY, NANCY CZARNECKI,* HARVEY KRIEGER* AND WILLIAM E. ABBOTT.* *Western Reserve Univ.*

3:45 **2322.** Citric acid cycle in certain alterations of acid-base balance in human subjects. WILBERT GAMBLE,* JAMES M. ORTEN AND ARTHUR H. SMITH. *Wayne State Univ.*

Amino Acid Nutrition and Metabolism

MON. P.M.—CONRAD HILTON, BEVERLY ROOM

Chairman: James B. Allison

1:30 **2323.** 1,2-C^{14}-aminoethanol metabolism in the chick. G. J. KLAIN* AND B. CONNOR JOHNSON. *Univ. of Illinois.*

1:45 **2324.** Muscular dystrophy in chicks influenced by arginine. C. C. CALVERT,* M. C. NESHEIM* AND M. L. SCOTT. *Cornell Univ.*

2:00 **2325.** Importance of dispensable amino acids for normal growth of chicks. W. P. STUCKI,* A. E. HARPER AND C. A. ELVEHJEM. *Univ. of Wisconsin.*

2:15 **2326.** Chemical and histological effects of lysine deficiency on femurs of New Hampshire chicks. J. EDGAR BRAHAM,* CARLOS TEJADA* AND RICARDO BRESSANI. *INCAP, Guatemala.*

2:30 **2327.** A short-term procedure for determining amino acid requirements of laying hens. EDWARD C. MILLER,* JEAN S. O'BARR* AND CHARLES A. DENTON. *U.S. Dept. of Agric.*

2:45 **2328.** Quantitative aspects of amino acid imbalance. HANS FISHER, P. GRIMINGER AND G. A. LEVEILLE.* *Rutgers Univ.*

3:00 **2329.** Amino acid imbalance. U. S. KUMTA* AND A. E. HARPER. *Univ. of Wisconsin.*

3:15 **2330.** Leucine-isoleucine antagonism in the rat. PARI D. SPOLTER* AND A. E. HARPER. *Univ. of Wisconsin.* (Biochem.)

3:30 **2331.** Amino acid interrelationships. SELMA E. SNYDERMAN, L. EMMETT HOLT, JR., PATRICIA NORTON* AND ELLEN ROITMAN.* *New York Univ.*

3:45 **2332.** Early uptake of DL-methionine-2-C^{14} and L-methionine-methyl-C^{14} by rat tissues. CECILE H. EDWARDS, EVELYN L. GADSEN AND GERALD A. EDWARDS (intr. by PEARL P. SWANSON). *Agric. and Tech. Coll. of North Carolina.*

4:00 **2333.** Isoleucine, leucine, phenylalanine and valine requirements of chinook salmon. R. E. CHANCE,* J. E. HALVER AND E. T. MERTZ. *U.S. Fish and Wildlife Ser.*

4:15 **2334.** Indispensable amino acids for sockeye salmon and rainbow trout. W. E. SHANKS* AND J. E. HALVER. *U.S. Fish and Wildlife Ser.*

Intersociety Sessions

See this program issue, pages 434–442, for Intersociety Sessions and Symposia sponsored or co-sponsored by the American Institute of Nutrition.

Tuesday Morning, April 12, 9:00 a.m.

Human Nutrition: Minerals and Lipids

TUES. A.M.—CONRAD HILTON, WALDORF ROOM

Chairman: Paul György

MINERALS

9:00 **2335.** Iron content of placental tissue. BONNIE AMERMAN MCCOY AND ROBERTA E. BLEILER (intr. by MARGARET A. OHLSON). *State Univ. of Iowa.*

9:15 **2336.** Effect of high-calcium intake on calcium metabolism of man. MARGARET LI, H. SPENCER, AND J. SAMACHSON (intr. by M. GALDSTON). *Montefiore Hosp., New York.* (Physiol.)

LIPIDS

9:30 **2337.** Lipid metabolism of young men in Arkansas. M. ISABEL IRWIN* AND HILDA F. WIESE. *Univ. of Arkansas and Univ. of Texas.*

9:45 **2338.** Lipid metabolism of young men in Washington state. MARY R. GRAM,* E. A. DONALD* AND HILDA F. WIESE. *Washington State Univ. and Univ. of Texas.*

10:00 **2339.** Lipid metabolism of young men in Alabama. FRIEDA L. MEYER AND DORIS D. TAYLOR.* *Univ. of Alabama and U.S. Dept. of Agric.*

10:15 **2340.** Intake and fecal excretion of fat by 36 preadolescent girls. LARUE B. STIER, DORIS D. TAYLOR, PATRICIA A. GOODMAN AND JUNE K. PACE (intr. by CALLIE MAE COONS). *U.S. Dept. of Agric., Washington.*

10:30 **2341.** Serum lipid patterns in mothers and their newborn infants. C. W. WOODRUFF AND J. G. CONIGLIO. *Vanderbilt Univ.*

Amino Acids and Proteins

TUES. A.M.—CONRAD HILTON, ASTORIA ROOM

Chairman: Joseph H. Roe

9:00 **2342.** Phenylalanine metabolism in rats fed raw soybean oil meal. AGARAM SUBBA RAO* AND RAYMOND BORCHERS. *Univ. of Nebraska.*

9:15 **2343.** Effects of various carbohydrates on utilization of lysine by rats. YET-OY CHANG AND HELEN J. SOUDERS (intr. by C. A. STORVICK). *Univ. of Wyoming.*

9:30 **2344.** Effect of lysine on dental caries and growth in the rat. ELEANOR J. EDMONDS,* KENNETH O. MADSEN* AND EDWIN L. SMITH. *Univ. of Texas.* (Physiol.)

9:45 **2345.** Biological evaluation of protein quality. B. L. OSER, S. CARSON* AND M. OSER.* *Food and Drug Res. Labs., New York.*

10:00 **2346.** Nutritional value of defatted fish flour. A. B. MORRISON AND J. A. CAMPBELL. *Food and Drug Lab., Ottawa.*

10:15 **2347.** Optimum levels of amino acid supplementation for lime-treated corn. RICARDO BRESSANI. *INCAP, Guatemala.*

10:30 **2348.** 'Reserve protein'—a misnomer? E. HALAC, JR. (intr. by L. E. HOLT, JR.). *New York Univ.*

10:45 **2349.** A new serum protein in pregnant rats. GEORG) H. BEATON AND ANNE SELBY (intr. by E. W. MCHENRYE. *Univ. of Toronto.*

Nutrition Society Business Meeting

TUESDAY, 11:00 A.M.—CONRAD HILTON, WALDORF ROOM

Placement Service

Exhibition Hall, fourth floor, Palmer House

Future Annual Meetings

Dates of Federation Annual Meetings for the next three years are: 1961: April 10–14; 1962: April 16–20; 1963: April 15–19.

Intersociety Sessions

See this program issue, pages 434–442, for Intersociety Sessions and Symposia sponsored or co-sponsored by the American Institute of Nutrition.

Tuesday Afternoon, April 12, 1:30 p.m.

SYMPOSIUM: Metabolic Patterns in Preadolescent Children: Influence of Varying Levels of Protein Intake

TUES. PM.—CONRAD HILTON, WALDORF ROOM

Chairman: Florence L. MacLeod

1:30 **2350.** Description of the metabolic studies. LAURA J. HARPER. *Virginia Polytech. Inst.*
2:00 **2351.** Nitrogen and amino acids. WILLIAM H. JAMES. *Louisiana State Univ.*
3:05 **2352.** Energy. DOROTHY S. MOSCHETTE. *Louisiana State Univ.*
3:25 **2353.** Calcium, phosphorus and magnesium. FRANCES A. SCHOFIELD. *Univ. of Tennessee.*
3:45 **2354.** Vitamins and minor elements. CALLIE MAE COONS. *U.S. Dept. of Agric., Washington.*
4:05 **2355.** Discussion. GRACE A. GOLDSMITH. *Tulane Univ.*

Mineral Nutrition and Metabolism

TUES. P.M.—CONRAD HILTON, ASTORIA ROOM

Chairman: Richard H. Barnes

1:30 **2356.** Effect of dietary vitamin E, fat and iron on Fe^{59} metabolism in rats. R. H. MAYO,* R. G. BUESCHER* AND M. C. BELL. *UT-AEC Agric. Res. Lab.*

1:45 **2357.** Hematological responses to copper and iron deficiency in chickens. C. H. HILL AND G. MATRONE. *North Carolina State Coll.*

2:00 **2358.** Influence of stable dietary barium, strontium and calcium on uptake of Ba^{133}, Sr^{89}, Ca^{45}, stable strontium and calcium by tibiae of chicks. FRANK R. MRAZ. *UT-AEC Agric. Res. Lab.*

2:15 **2359.** Bone density and calcium ingestion. HARALD SCHRAER AND W. JOHN SIAR (intr. by I. ZIPKIN). *Pennsylvania State Univ.*

2:30 **2360.** Utilization of yolk-sac calcium and phosphorus by the newly hatched chick. T. A. CROWLEY,* A. A. KURNICK,* M. G. VAVICH* AND A. R. KEMMERER. *Univ. of Arizona.*

2:45 **2361.** Carbohydrates and intestinal absorption of radiocalcium in the rat. OLIVER W. VAUGHAN* AND L. J. FILER, JR. *Ross Labs., Columbus.*

3:00 **2362.** Influence of aging on calcium metabolism in rats. J. KASTELIC, R. HIRONAKA* AND H. H. DRAPER. *Univ. of Illinois.*

3:15 **2363.** Anomalous development of the inner ear in offspring of manganese-deficient rats. LUCILLE S. HURLEY, ELOISE WOOTEN,* GLADYS J. EVERSON AND C. WILLET ASLING.* *Univ. of California.*

3:30 **2364.** Effect of magnesium and vitamin B_6 in protecting against renal oxalate deposition in rats. S. N. GERSHOFF AND S. B. ANDRUS.* *Harvard Univ.*

3:45 **2365.** Magnesium deficiency in ducks. J. DI GIORGIO,* J. J. VITALE AND E. E. HELLERSTEIN.* *Harvard Univ.*

4:00 **2366.** Effect of diet on tissue fluoride:magnesium ratio in the rat. WILLIAM C. FOSTER, W. A. STERLING,* J. P. RUSH* AND J. A. REHM.* *Lab. of Physiol. Res.* (Physiol.)

4:15 **2367.** Effects of cooking on Ca^{45} and Sr^{89} in beef loin roasts. M. C. BELL AND R. G. BUESCHER.* *UT-AEC Agric. Res. Lab.*

Joint Session of the Federation

TUESDAY, 8:00 P.M.—CONRAD HILTON, GRAND BALLROOM

Wednesday Morning, April 13, 9:00 a.m.

SYMPOSIUM: Problems of Nutrition Appraisal of Man

Co-sponsored by the Nutrition Study Section, Division of Research Grants and the Interdepartmental Committee on Nutrition for National Defense, National Institutes of Health

WED. A.M.—CONRAD HILTON, WALDORF ROOM

Chairman: John B. Youmans

9:00 **2368.** Chairman's introductory remarks. JOHN B. YOUMANS. *U.S. Army, Surgeon General's Office.*

9:10 **2369.** Problems of physical appraisal—a. Anthropometry. S. M. GARN. *Fels Res. Inst.*

9:25 **2370.** Problems of physical appraisal—b. In populations with abundant food supplies. R. E. OLSON. *Univ. of Pittsburgh.*

9:40 **2371.** Problems of physical appraisal—c. In populations with inadequate food supplies. GRACE GOLDSMITH. *Tulane Univ.*

9:55 **2372.** Dietary appraisal—a. Limitations of existing methods. DOROTHY G. WIEHL. *Milbank Mem. Fund, New York.*

10:10 **2373.** Dietary appraisal—b. Problems of food analysis. L. J. TEPLY. *Wisconsin Alumni Res. Fndn., Madison.*

10:25 **2374.** Problems of biochemical appraisal of nutritional status. D. M. HEGSTED AND W. N. PEARSON. *Harvard Univ. and Vanderbilt Univ.*

10:55 Discussion.

Lipid Metabolism and Nutrition

WED. A.M.—CONRAD HILTON, ASTORIA ROOM

Chairman: Wendell H. Griffith

9:00 **2375.** Influence of a hypercaloric diet on gross body and adipose tissue composition in the rat. CECIL ENTENMAN AND S. C. PECKHAM.* *U.S. Naval Radiol. Def. Lab.* (Physiol.)

9:15 **2376.** Effect of high fat diet on blood sugar, glucose tolerance and weight of the male rat. ENID A. NEIDLE, DOROTHY FETTER AND HSOU-KAO LIU.* *New York Univ.* (Physiol.)

9:30 **2377.** Turnover rates of plasma nonesterified fatty acids in the postabsorptive dog. MARGARET W. BATES* AND ROBERT E. OLSON. *Univ. of Pittsburgh.*

9:45 **2378.** Swelling of rat liver mitochondria in essential fatty acid deficiency. T. HAYASHIDA* AND O. W. PORTMAN. *Harvard Univ.*

10:00 **2379.** Polyunsaturated fatty acids in normal growing rats. JOHN C. KIRSCHMAN* AND JOHN G. CONIGLIO. *Vanderbilt Univ.* (Biochem.)

10:15 **2380.** Effect of dietary fat on metabolic patterns in rats on severely restricted diets. L. ARNRICH, J. L. DUPONT* AND J. E. CLIFFORD.* *Iowa State Univ.*

10:30 **2381.** Metabolism of saturated fatty acids by the rat. S. L. KIRSCHNER* AND ROBERT S. HARRIS. *Massachusetts Inst. of Technol.*

10:45 **2382.** Position of linoleic acid in the triglycerides of mouse depot fat. S. B. TOVE AND F. H. SMITH.* *North Carolina State Coll.*

11:00 **2383.** Inhibition of chicken growth by cholesterol and saturated fatty acids (SFA) and reversal by a source of unsaturated fatty acids (UFA). L. J. MACHLIN AND R. S. GORDON.* *Monsanto Chemical Co., St. Louis.*

11:15 **2384.** Effect of dietary fat on the fatty acid composition of brain and liver mitochondria. G. J. MARCO,* L. J. MACHLIN AND R. S. GORDON.* *Monsanto Chemical Co., St. Louis.*

11:30 **2385.** Hypertension, diet and lipemia in the rat. J. B. ALLISON, P. BRAND,* R. W. WANNEMACHER, JR.* AND L. P. PARMER.* *Rutgers Univ.*

11:45 **2386.** Protein-fatty acid interrelationships. GLADYS A. EMERSON AND JANE B. WALKER.* *Univ. of California.*

Wednesday Afternoon, April 13, 1:30 p.m.

SYMPOSIUM: Interaction of Mineral Elements in Nutrition and Metabolism (Panel Discussion)

WED. P.M.—CONRAD HILTON, WALDORF ROOM

Moderator: George K. Davis

1:30 **2387.** Introduction: GEORGE K. DAVIS. *Univ. of Florida.*
Brief summary statements by:

2388. Calcium and phosphorus in nutrition and relationships with other mineral nutrients. ROBERT H. WASSERMAN. *Cornell Univ.*

2389. Nutritional interactions of zinc and calcium. R. M. FORBES. *Univ. of Illinois.*

2390. Magnesium in nutrition and some interrelationships. B. L. O'DELL. *Univ. of Missouri.*

2391. Manganese in nutrition and its interactions with other mineral elements. GEORGE C. COTZIAS. *Brookhaven Natl. Labs.*

2392. Interrelationships of iron and copper in the nutrition and metabolism of animals. GENNARD MATRONE. *North Carolina State Coll.*

2393. Interrelations of copper, molybdenum and sulfate sulfur in nutrition. R. W. ENGEL AND RUSSELL MILLER. *Virginia Polytech. Inst.*

Followed by a panel discussion—with written questions invited from the floor.

(Preprints of the complete talks will be distributed at the meeting.)

Vitamin B Complex

WED. P.M.—CONRAD HILTON, ASTORIA ROOM

Chairman: Floyd S. Daft

1:30 **2394.** Deficiencies of certain B-vitamins on erythrocyte and tissue glutathione in rats. JENG M. HSU, ROBERT L. DUVALL* AND BACON F. CHOW. *VA Hosp. and Johns Hopkins Univ.*

1:45 **2395.** Intracellular distribution of carboxyl-C^{14}-biotin in rat and chick livers. S. P. MISTRY AND K. DAKSHINAMURTI (intr. by T. S. HAMILTON). *Univ. of Illinois.*

2:00 **2396.** Niacin biosynthesis in the developing chick embryo. ROBERT G. WILSON* AND L. M. HENDERSON. *Oklahoma State Univ.*

2:15 **2397.** Effects of nicotinamide and related compounds on the antileukemic activity of 2-amino-1,3,4-thiadiazole. HERBERT F. OETTGEN,* J. A. REPPERT,* V. COLEY* AND J. H. BURCHENAL. *Sloan-Kettering Inst.*

2:30 **2398.** Effect of dietary level of niacin and tryptophan on blood and liver pyridine nucleotide concentrations. MARY A. MORRISON* AND A. E. HARPER. *Univ. of Wisconsin.*

2:45 **2399.** Vitamin sparing by antibiotics. R. H. BARNES, C. BOURDEAU,* E. KWONG* AND G. FIALA.* *Cornell Univ.*

3:00 **2400.** Retention of thiamine in heat-processed meats. C. H. LUSHBOUGH AND BARBARA S. HELLER (intr. by B. S. SCHWEIGERT). *American Meat Inst. Fndn. and Univ. of Chicago.*

3:15 **2401.** Some drug-vitamin interrelationships in microorganisms. J. M. MCLAUGHLAN,* K. G. SHENOY* AND J. A. CAMPBELL. *Food and Drug Lab., Ottawa.*

American Institute of Nutrition Banquet

Presentation of Awards and Fellows

WEDNESDAY, 6:30 P.M.—CONRAD HILTON, WILLIFORD ROOM

Open to members and non-members. Tickets must be purchased by 5:00 p.m., Tuesday

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Biochemistry-Nutrition Smoker

WEDNESDAY, 9:00 P.M.—CONRAD HILTON, GRAND BALLROOM

Thursday Morning, April 14, 9:00 a.m.

SYMPOSIUM: Mechanism of Action of Vitamin B_{12}

THURS. A.M.—CONRAD HILTON, WALDORF ROOM

Chairman: D. W. Woolley

9:00 **2402.** Role of vitamin B_{12} in nucleic acid metabolism. B. S. SCHWEIGERT. *Univ. of Chicago.*

9:20 **2403.** Role of vitamin B_{12} in deoxyribonucleic acid biosynthesis. J. S. DINNING. *Univ. of Arkansas.*

9:45 **2404.** Cobamide coenzymes. H. A. BARKER. *Univ. of California.*

10:30 **2405.** Role of vitamin B_{12} in metabolism in the animal, especially in protein synthesis. B. C. JOHNSON. *Univ. of Illinois.*

Carbohydrates and Toxicology

THURS. A.M.—CONRAD HILTON, ASTORIA ROOM

Chairman: O. L. Kline

CARBOHYDRATES

9:00 **2406.** Cellulose digestion by the rat, a nonruminant. R. BERNAL JOHNSON AND DONALD A. PETERSON (intr. by H. E. SAUBERLICH). *U.S. Army Med. Res. & Nutr. Lab.*

9:15 **2407.** Calorigenic response to high carbohydrate intake in weanling rats. F. W. HEGGENESS (intr. by E. S. NASSET). *Univ. of Rochester.* (Physiol.)

TOXICOLOGY

9:30 **2408.** Effect of *Sterculia foetida* oil on yolk weight and water uptake of the hen egg. D. L. SCHNEIDER,* A. R. DOBERENZ,* A. A. KURNICK,* M. G. VAVICH* AND A. R. KEMMERER. *Univ. of Arizona.*

9:45 **2409.** Nutritive value of heated fats. LEO FRIEDMAN, W. HORWITZ,* GLEN M. SHUE* AND DAVID FIRESTONE.* *Food & Drug Admin.*

10:00 **2410.** Characteristics of lipids extracted from the lymph of rats fed fresh or heated corn oil. A. UENO,* M. INOUE,* M. SUGAI,* V. BHALERAO* AND F. A. KUMMEROW. *Univ. of Illinois.*

10:15 **2411.** A factor causing pericardial edema in chicks and its occurrence in some oleic acids. STANLEY R. AMES, WILLIAM J. SWANSON* AND PHILIP L. HARRIS. *Distillation Prod. Ind.* (Biochem.)

10:30 **2412.** Effect of arsenic on growth of mammalian cells in vitro. W. B. SAVCHUCK, S. S. SCHIAFFINO AND H. W. LOY (intr. by O. L. KLINE). *Food & Drug Admin.*

10:45 **2413.** Microbiological techniques in the study of arsenicals. S. S. SCHIAFFINO, H. W. LOY AND W. B. SAVCHUCK (intr. by O. L. KLINE). *Food & Drug Admin.*

Nutrition Society Business Meeting

THURSDAY, 11:00 A.M.—CONRAD HILTON, WALDORF ROOM

Visible Index and Message Center

Consult the visible index of registrants to locate your friends—Registration Area, Conrad Hilton.

Lost and Found

Federation Office, Room 505, Conrad Hilton

Thursday Afternoon, April 14, 1:30 p.m.

Vitamin E

THURS. P.M.—CONRAD HILTON, WALDORF ROOM

Chairman: Klaus Schwarz

1:30 **2414.** Pathology of vitamin E deficiency in the mink. H. D. STOWE,* C. K. WHITEHAIR AND H. TRAVIS.* *Michigan State Univ.*

1:45 **2415.** Some histological changes in the vitamin E deficient monkey. COY D. FITCH,* JAMES S. DINNING, RUTH S. YOUNG,* PAUL L. DAY AND HORACE N. MARVIN.* *Univ. of Arkansas.*

2:00 **2416.** Enzyme studies of skeletal muscle in vitamin E deficiency. T. R. KOSZALKA,* G. KROL* AND K. E. MASON. *Univ. of Rochester.*

2:15 **2417.** Metabolic changes in tocopherol-deficient rats. B. CENTURY* AND M. K. HORWITT. *Elgin State Hosp., Elgin, Ill.*

2:30 **2418.** Interrelationship of vitamin E, linoleic and long-chain keto acids. M. SUGAI,* M. INOUE,* H. TSUCHIYAMA* AND F. A. KUMMEROW. *Univ. of Illinois.*

2:45 **2419.** Effect of long-chain keto acids on the severity of chick encephalomalacia. M. KOKATNUR,* M. UCHIYAMA,* S. OKUI,* H. TSUCHIYAMA,* F. A. KUMMEROW AND H. M. SCOTT. *Univ. of Illinois.*

3:00 **2420.** Nutritive effects of selenium for chicks. M. C. NESHEIM* AND M. L. SCOTT. *Cornell Univ.*

3:15 **2421.** A tocopherol sparing effect of S-amino acids. K. SCHWARZ AND C. M. FOLTZ.* *Natl. Insts. of Health.*

3:30 **2422.** Determination of N,N′-diphenyl-p-phenylenediamine (DPPD) in animal tissues and its biopotency in muscular dystrophy of rabbits. H. H. DRAPER AND A. SAARI CSALLANY.* *Univ. of Illinois.*

3:45 **2423.** Vitamin E and antioxidants in the nutrition of the rat. Q. E. CRIDER,* PETAR ALAUPOVIC* AND B. CONNOR JOHNSON. *Univ. of Illinois.*

4:00 **2424.** Summary remarks of chairman. K. SCHWARZ. *Natl. Insts. of Health.*

Vitamin B_6 and Vitamin B_{12}

THURS. P.M.—CONRAD HILTON, ASTORIA ROOM

Chairman: Mattie Rae Spivey Fox

VITAMIN B_6 METABOLISM

1:30 **2425.** Erythropoiesis in ducks with different B vitamin deficiencies. DAN A. RICHERT, B. PIXLEY* AND M. P. SCHULMAN.* *State Univ. of New York.*

1:45 **2426.** Relationship between vitamin deficiency and certain blood enzymes in rats. MYRON BRIN AND BARBARA OWENS. *State Univ. of New York.* (Biochem.)

2:00 **2427.** Effects of pyridoxine depletion on three enzymes requiring pyridoxal phosphate ($B_6 \cdot PO_4$) as a cofactor. FRED ROSEN AND RICHARD MILHOLLAND.* *Roswell Park Mem. Inst.*

2:15 **2428.** Comparison of serum and erythrocyte hemolysate transaminase systems. DAVID J. ALBERT* AND MYRON BRIN. *State Univ. of New York.*

2:30 **2429.** Growth response and plasma GOT levels in rats with chronic and intermittent B_6 deficiencies. SAMUEL D. J. YEH,* ELBA DURAN* AND BACON F. CHOW. *Johns Hopkins Univ.*

2:45 **2430.** Effect of feeding pattern and vitamin B_6 deficiency on acetate incorporation into lipids in rat liver slices. MARY ANN WILLIAMS AND RUTH PERTEL.* *Univ. of California.*

VITAMIN B_{12} AND INTRINSIC FACTOR

3:00 **2431.** Binding of Co^{60}-vitamin B_{12} by *Lactobacillus leichmanii*. S. KASHKET AND JUNE L. TAVE (intr. by A. LEAF). *Massachusetts Gen. Hosp. and Harvard Univ.* (Physiol.)

3:15 **2432.** Effect of repeated urinary excretion test on B_{12} absorption and excretion in rats. VICTOR TANTENGCO,* KUNIO OKUDA* AND BACON F. CHOW. *Johns Hopkins Univ.* (Immunol.)

3:30 **2433.** Tissue retention and urinary excretion of injected vitamin B_{12} and its coenzyme in the rat. VERNON WONG, SAMUEL YEH AND BRYANT CHOW (intr. by E. B. MCCOLLUM). *Johns Hopkins Univ.*

3:45 **2434.** A relationship of vitamin B_{12} to hydroxymethyl tetrahydrofolic dehydrogenase. JAMES S. DINNING AND ROSE HOGAN.* *Univ. of Arkansas.*

4:00 **2435.** Absorption of intrinsic factor (IF). O. NEAL MILLER, FRANK J. TRONCALE* AND HANS J. HANSEN.* *Tulane Univ.*

4:15 **2436.** Mechanism of interaction of intrinsic factor (IF) and cofactor. HANS J. HANSEN* AND O. NEAL MILLER. *Tulane Univ.*

Friday Morning, April 15, 9:00 a.m.

Vitamins (A, D, K and General)

FRI. A.M.—CONRAD HILTON, WALDORF ROOM

Chairman: Thomas D. Luckey

UNIDENTIFIED FACTORS

9:00 **2437.** Cricket nutrition: unidentified growth factor. P. NEVILLE* AND T. D. LUCKEY. *Univ. of Missouri.*

9:15 **2438.** Anticariogenicity of seed hulls in the cotton rat diet. KENNETH O. MADSEN (intr. by E. BEERSTECHER, JR.). *Univ. of Texas.* (Biochem.)

DISEASE AND NUTRITION RELATIONSHIP

9:30 **2439.** Effect of coccidiosis infection on vitamin A and E levels of the rabbit. J. FRIEDRICH DIEHL AND BILL G. KISTLER (intr. by J. S. DINNING). *Univ. of Arkansas.*

9:45 **2440.** Influence of quality of dietary protein on susceptibility of rats to infection with *Trypanosoma cruzi*. ROBERT G. YAEGER* AND O. NEAL MILLER. *Tulane Univ.*

10:00 **2441.** Effect of pyridoxine, pantothenic acid and thiamine deficiencies upon antibody formation to PR^8 influenza virus in rats. SARAH HOPPER* AND A. E. AXELROD. *Univ. of Pittsburgh.*

VITAMINS A, D AND K

10:15 **2442.** Utilization of carotene as affected by variations in dietary nitrogen in young rats. V. JOHNSON* AND L. ARNRICH. *Iowa State Univ.*

10:30 **2443.** Influence of parental ascorbic acid on Ca^{45} utilization by progeny in the domestic chicken. P. A. THORNTON (intr. by P. E. WAIBEL). *Colorado State Univ.*

10:45 **2444.** Vitamin D and the transfer of Ca across the intestinal wall in vitro. HAROLD E. HARRISON,* HELEN C. HARRISON AND EDWARD H. STEIN.* *Johns Hopkins Univ. and Baltimore City Hosps.* (Physiol.)

11:00 **2445.** Vitamin K requirement of the rat when fed irradiated beef. WILLIAM S. WORTH, MERRILL S. READ AND RICHARD W. POSPISTLE (intr. by H. E. SAUBERLICH). *U.S. Army Med. Res. and Nutr. Lab.*

11:15 **2446.** Cause of vitamin K deficiency in male rats fed irradiated beef. M. S. MAMEESH,* V. C. METTA,* P. B. RAMA RAO* AND B. CONNOR JOHNSON. *Univ. of Illinois.*

Friday Afternoon, April 15, 1:00 p.m.

SYMPOSIUM: New Aspects of Nutrition Uncovered in Studies with Irradiated Foods

FRI. P.M.—CONRAD HILTON, WALDORF ROOM

Chairman: Merrill S. Read

1:00 **2447.** Introduction

1:05 **2448.** A long-term feeding study of irradiated foods using rats as experimental animals. L. R. RICHARDSON, S. J. RITCHEY AND R. H. RIGDON. *Texas Agric. Expt. Sta. and Univ. of Texas.*

1:25 **2449.** Effect of irradiated meats upon growth and reproduction in dogs. C. M. MCCAY. *Cornell Univ.*

1:40 **2450.** Heart lesions in mice fed an irradiated diet. HARRY MONSEN. *Univ. of Illinois.*

1:55 **2451.** Carbonyls as inhibitors of lipid metabolism and their significance in irradiated foods. KENNETH J. MONTY. *Johns Hopkins Univ.*

2:10 **2452.** Vitamin K nutrition and irradiation sterilization. B. CONNOR JOHNSON, M. S. MAMEESH, V. CHALAM METTA AND P. B. RAMA RAO. *Univ. of Illinois.*

2:35 **2453.** Influence of age, sex, strain of rat and fat soluble vitamins on hemorrhagic syndromes in rats fed irradiated beef. SUSAN J. MELLETTE AND LOUIS A. LEONE. *Med. Coll. of Virginia.*

2:55 **2454.** Tissue modification following ingestion of irradiated foods. IAN J. TINSLEY, JESSE F. BONE AND EDWARD C. BUBL. *Oregon State Coll.*

3:15 **2455.** Human feeding studies with irradiated foods. IRVIN C. PLOUGH, EDWIN L. BIERMAN, LESTER M. LEVY AND NORMAN F. WITT. *U.S. Army Med. Res. and Nutr. Lab. and Univ. of Colorado.*

3:30 **2456.** A summary of the wholesomeness of irradiated foods. MERRILL S. READ. *Virginia Polytech. Inst. and U.S. Army Med. Res. and Nutr. Lab.*

American Association of Immunologists

Forty-fourth Annual Meeting

Monday Morning, April 11, 9:00 a.m.

Viruses: General

MON. A.M.—BLACKSTONE, MAYFAIR ROOM

Chairman: J. L. Melnick

9:00 **2457.** Viral studies of an outbreak of cholera. ANDREW ABRAHAM (intr. by F. S. CHEEVER). *Univ. of Pittsburgh.*

9:15 **2458.** Serological responses in Bangkok hemorrhagic fever. W. McD. HAMMON, GLADYS SATHER* AND AMBHAN DASANEYAVAJA.* *Univ. of Pittsburgh.*

9:30 **2459.** 'Trachoma viruses' isolated in California. E. JAWETZ, L. HANNA,* P. THYGESON* AND C. DAWSON.* *Univ. of California.*

9:45 **2460.** Fluorescent antibody studies on the pathogenesis of West Nile virus. W. D. KUNDIN,* CHIEN LIU AND TE YOUNG LOU. *Univ. of Kansas.*

10:00 **2461.** Isolated viral inclusions. CHARLES C. RANDALL AND L. G. GAFFORD.* *Univ. of Mississippi.*

10:15 **2462.** Bacteriophage neutralization by serum. A. J. TOUSSAINT (intr. by L. S. BARON). *Walter Reed Army Inst. Res.*

10:30 **2463.** Demonstration of virus antigen in human postmortem tissue by fluorescent antibody technique. JOHN L. RIGGS* AND GORDON C. BROWN. *Univ. of Michigan.*

10:45 **2464.** Value of acridine orange for sterilizing viruses in plasma and whole blood. GERALD LOGRIPPO AND DANIEL BASINSKI. *Henry Ford Hosp.*

11:00 **2465.** Subclinical Japanese encephalitis in man. SCOTT B. HALSTEAD AND CARL R. GROSZ (intr. by E. L. BUESCHER). *406th Med. Gen. Lab.*

11:15 **2466.** Inactivation of influenza virus by air pollutants. ROBERT D. BOCHE* AND J. J. QUILLIGAN, JR. *Coll. of Med. Evangelists.*

Antigen-Antibody Reactions I

MON. A.M.—BLACKSTONE, HUBBARD ROOM

Chairman: W. C. Boyd

9:00 **2467.** Antigen-antibody diffusion in agar plates. FREDERICK ALADJEM, HENRY KLOSTERGAARD* AND RITA L. PALDINO.* *Univ. of Southern California.*

9:15 **2468.** Determination of antigen and antibody concentrations in absolute weight units by means of the serum agar technique of Oudin. ELMER L. BECKER AND ALONZA R. HAYDEN.* *Walter Reed Army Inst. Res.*

9:30 **2469.** Some quantitative aspects of agar column diffusion analyses. WILLIAM G. GLENN (intr. by A. A. BOYDEN). *Brooks Air Force Base.*

9:45 **2470.** Artifacts in gel diffusion due to concentration of and distance between antigen and antibody. SUNG J. LIAO. *Waterbury Hosp.*

10:00 **2471.** Immunological investigation of rat uterine fluid. HENRY J. ALBERS AND M. NEVES E CASTRO (intr. by DAVID STONE). *Worcester Fndn.* (Biochem.)

10:15 **2472.** Immunochemical and biological properties of cross-reacting systems. W. O. WEIGLE. *Univ. of Pittsburgh.*

10:30 **2473.** Serological studies of ovalbumin denatured by x-rays. CHARLES A. LEONE. *Univ. of Kansas.*

10:45 **2474.** Reactivity of denatured antigens toward antiserum against native antigen. ARTHUR A. HIRATA (intr. by DAN H. CAMPBELL). *California Inst. of Technol.*

11:00 **2475.** Antibody recovery and virus reactivation following dissociation of antibody-virus complexes. IRVING RAPPAPORT. *Univ. of California.*

11:15 **2476.** Specific absorption of the complement dependent bactericidal effect of normal serum. ROBERT J. ROANTREE (intr. by S. RAFFEL). *Stanford Univ.*

11:30 **2477.** Effect of specific antibodies on xanthine oxidase from various sources. JOHN E. ULTMANN AND PHILIP FEIGELSON (intr. by SAM M. BEISER). *Columbia Univ.*

11:45 **2478.** Effect of diazonium coupling on anti-Forssman antibody. FELIX BOREK AND ARTHUR M. SILVERSTEIN (intr. by S. B. FORMAL). *Armed Forces Inst. of Pathol.*

Monday Afternoon, April 11, 1:30 p.m.

Transplantation and Tissue Antibodies. Autoantibodies

MON. P.M.—BLACKSTONE, CRYSTAL BALLROOM

Chairman: A. H. Coons

1:30 **2479.** Delayed intracutaneous hypersensitivity to donor leukocytes following rejection of skin homografts in man. JOHN P. MERRILL, ELI A. FRIEDMAN, RICHARD WILSON AND COLETTE HANAU (intr. by D. G. FRIEND). *Harvard Univ.* (Pharmacol.)

1:45 **2480.** An improved technique of skin grafting and its favorable influence on graft survival. MORTON PADNOS, LEO GROSS AND BERNARD GOTTFRIED (intr. by NORMAN MOLOMUT). *Waldemar Med. Res. Fndn.*

2:00 **2481.** Serum antibodies following homotransplantation of human cancer cell lines. MIKI AIZAWA (intr. by A. E. MOORE). *Sloan-Kettering Inst.*

2:15 **2482.** Immunologic recognition of transplantation antigens. J. H. BERRIAN AND C. F. MCKHANN (intr. by RAY D. OWEN). *Naval Med. Res. Inst.*

2:30 **2483.** Specificity of immunological depression. H. TIMOURIAN AND A. M. SCHECHTMAN (intr. by CLARA M. SZEGO). *Univ. of California.* (Physiol.)

2:45 **2484.** Autoantibodies to thyroid tissue sediment. JOSEPH H. KITE, JR.* AND NOEL R. ROSE. *Univ. of Buffalo.*

3:00 **2485.** Adrenal autoantibody production in guinea pigs. ERNEST WITEBSKY AND FELIX MILGROM.* *Univ. of Buffalo.*

3:15 **2486.** Autoimmune nephrosis in rats. W. HEYMANN, D. B. HACKEL AND J. L. P. HUNTER (intr. by J. H. DINGLE). *Western Reserve Univ.*

3:30 **2487.** Evidence for a lethal auto-immune response in severely burned rats. STEPHEN ATHERTON,* NANCY MERRILL* AND MILES D. MCCARTHY. *Pomona Coll.* (Physiol.)

3:45 **2488.** 'Toxin-antitoxin' phenomena in injured animals and man (thermal, radiation and physical injury). SOL ROY ROSENTHAL, WILMA A. SPURRIER* AND ALAN B. GOODMAN.* *Univ. of Illinois.* (Physiol.)

4:00 **2489.** Tissue antibody studies. LOUIS H. MUSCHEL, LOIS A. SIMONTON* AND PATRICIA A. WELLS.* *Walter Reed Army Inst. Res.*

4:15 **2490.** Lung localizing antibodies. Y. YAGI, I. TAMANOI* AND D. PRESSMAN. *Roswell Park Mem. Inst.*

Microorganisms I

MON. P.M.—BLACKSTONE, MAYFAIR ROOM

Chairman: F. S. Cheever

1:30 **2491.** Serological relationships of *Azotobacter*. ORVILLE WYSS AND VERA IMOGENE RUSSELL.* *Univ. of Texas.* (Biochem.)

1:45 **2492.** Electron microscopy of *Coccidioides immitis*. JOHN O. ERICKSON AND ABRAHAM M. BRESLAU.* *VA Hosp. and UCLA.*

2:00 **2493.** Serologic behavior of rickettsial antigens after purification by anion exchange chromatography. NORMAN K. BROWN (intr. by HENRY S. FULLER). *Walter Reed Army Inst. Res.*

2:15 **2494.** Immunochemistry of normal and genetically altered tryptophan synthetase from *Neurospora crassa*. MICHAEL CARSIOTIS* AND SIGMUND R. SUSKIND. *Johns Hopkins Univ.*

2:30 **2495.** Cytochemical study of interaction between bacteria and protein with high isoelectric point. JOHN K. SPITZNAGEL (intr. by JOHN H. SCHWAB). *Univ. of North Carolina.*

2:45 **2496.** Approach to the problem of identifying a complement substrate or receptor in cell walls. A. C. WARDLAW (intr. by B. CINADER). *Connaught Med. Res. Labs.*

3:00 **2497.** Influence of temperature on sensitivity of *Paracolobactrum ballerup* to the bactericidal action of serum. ETSUKO OSAWA (intr. by L. H. MUSCHEL). *Walter Reed Army Inst. Res.*

3:15 **2498.** Phase microscopy of the response of intra- and extracellular *Salmonella typhosa* to antibiotic therapy. H. E. HOPPS, J. L. SHOWACRE* AND J. E. SMADEL. *Natl. Insts. of Health.*

3:30 **2499.** Serologic studies of *Salmonella typhosa*. E. E. BAKER AND R. E. WHITESIDE. *Boston Univ.*

3:45 **2500.** Muller phenomenon—satellite proteolysis of staphylococcus aureus. PAUL G. QUIE* AND LEWIS W. WANNAMAKER. *Univ. of Minnesota.*

4:00 **2501.** Non-monotonic response patterns in animals injected with weakly virulent cultures of *Pasteurella tularensis*. V. J. CABELLI, L. K. MAY AND A. P. DUFOUR (intr. by S. MARCUS). *Dugway Proving Ground.*

Placement Service

Exhibition Hall, fourth floor, Palmer House

Tuesday Morning, April 12, 9:00 a.m.

Infection and Resistance

TUES. A.M.—BLACKSTONE, CRYSTAL BALLROOM

Chairman: M. McCarty

9:00 **2502.** Effects of chronic whole-body x-radiation on antibody responses to aqueous and emulsified influenza virus vaccines. BYRON S. BERLIN (intr. by THOMAS FRANCIS, JR.). *Univ. of Michigan.*

9:15 **2503.** Influence of x-irradiation upon acquisition of immunity to infections. SIDNEY RAFFEL, MARJORIE LASALLE* AND IVAN KOCHAN.* *Stanford Univ.*

9:30 **2504.** Serum components related to immunity in animals chemically protected against x-irradiation. W. A. HOOK,* L. H. MUSCHEL AND G. EDSALL. *Walter Reed Army Inst. Res.*

9:45 **2505.** In vitro studies of interaction between mouse peritoneal macrophages and strains of *Salmonella* and *E. coli*. C. R. JENKIN AND D. PALMER (intr. by B. BENACERRAF). *New York Univ.*

10:00 **2506.** Lysozyme content of normal rabbit alveolar macrophages. QUENTIN N. MYRVIK, EVA SOTO LEAKE* AND BRUCE L. FARISS.* *Univ. of Virginia.*

10:15 **2507.** RE function and phosphatase activity in mouse liver. G. J. THORBECKE, L. J. OLD,* B. BENACERRAF AND D. A. CLARKE.* *New York Univ. and Sloan-Kettering Inst.*

10:30 **2508.** Relationship between antibodies and immunity in measles. FRANCIS L. BLACK AND S. R. SHERIDAN.* *Yale Univ.*

10:45 **2509.** Transmission of polioviruses. P. F. WEHRLE, FELICITAS HAGEN* AND O. CARBONARO.* *State Univ. of New York.*

11:00 **2510.** Paralytic poliomyelitis in vaccinated children. DONALD M. MCLEAN. *Hosp. for Sick Children, Toronto.*

11:15 **2511.** Experimental poliomyelitis following intramuscular virus injection. NEAL NATHANSON (intr. by D. BODIAN). *Johns Hopkins Univ.*

11:30 **2512.** Development of a formalinized Rift Valley fever vaccine. R. RANDALL, C. J. GIBBS, JR., C. G. AULISIO AND L. M. BINN (intr. by GEOFFREY EDSALL). *Walter Reed Army Inst. Res.*

Antigens and Antibodies I

TUES. A.M.—BLACKSTONE, MAYFAIR ROOM

Chairman: H. N. Eisen

9:00 **2513.** Antigenic differences between the 7S and 19S components of normal human γ-globulin and the 19S monomers. E. C. FRANKLIN AND C. A. REISNER.* *New York Univ.*

9:15 **2514.** Differences in primary structure of related purified antibodies. DAVID GITLIN. *Harvard Univ.*

9:30 **2515.** Nature of active site of anti-benzoate antibodies. D. PRESSMAN, G. RADZIMSKI,* A. SHAW* AND A. NISONOFF.* *Roswell Park Mem. Inst.*

9:45 **2516.** Identification of iodine-reacting amino acids in antibody. MARIAN ELLIOTT KOSHLAND, M. J. ERWIN* AND F. M. ENGLBERGER.* *Brookhaven Natl. Lab.*

10:00 **2517.** Role of disulfide bonds in the structure of rabbit antibody. A. NISONOFF, F. C. WISSLER* and D. L. WOERNLEY.* *Roswell Park Mem. Inst.* (Biochem.)

10:15 **2518.** Rabbit antibodies against γ-globulins resembling the rheumatoid factor. FELIX MILGROM* AND ERNEST WITEBSKY. *Univ. of Buffalo.*

10:30 **2519.** Serum specificities in the anthropoidea. MORRIS GOODMAN AND M. D. POULIK.* *Wayne State Univ. and Children's Hosp.*

10:45 **2520.** Antigenic properties of bovine red cell stroma. BECCA PATRAS AND W. H. STONE (intr. by M. R. IRWIN). *Univ. of Wisconsin.*

11:00 **2521.** Immunologic differences between 'normal' fetal and thalassemia fetal hemoglobins. W. F. MCCORMICK AND R. H. WALKER (intr. by C. C. ERICKSON). *Univ. of Tennessee.* (Pathol.)

11:15 **2522.** Isolation and immunochemical assay of cerebral myelin. FRANK H. HULCHER AND MILES R. COOPER (intr. by WILLIAM A. WOLFF). *Bowman-Gray Sch. Med.* (Biochem.)

11:30 **2523.** An immunochemical assay of human insulin. G. M. GRODSKY, P. H. FORSHAM AND C. T. PENG (intr. by H. HARPER). *Univ. of California.* (Biochem.)

Tuesday Afternoon, April 12, 1:30 p.m.

Microorganisms II

TUES. P.M.—BLACKSTONE, CRYSTAL BALLROOM

Chairman: J. E. Smadel

1:30 **2524.** Bacterial ribonucleic acid inhibitor of streptococcal DNase B and streptococcal RNase activities. L. W. WANNAMAKER. *Univ. of Minnesota.*

1:45 **2525.** Chemical and immunological studies of protoplast membranes of group A streptococci. E. H. FREIMER* AND R. M. KRAUSE. *Rockefeller Inst.*

2:00 **2526.** Lysis of the streptococcal cell wall by a phage-associated lysin. R. M. KRAUSE AND M. MCCARTY. *Rockefeller Inst.*

2:15 **2527.** Pyrogenic toxins of group A streptococci. N. CREMER* AND D. W. WATSON. *Univ. of Minnesota.*

2:30 **2528.** M antigen composition of group A, type 14, streptococci. G. G. WILEY. *duPont Inst.*

2:45 **2529.** Inhibition of the chain splitting mechanism of group A streptococci by antibody to M protein. R. D. EKSTEDT* AND G. H. STOLLERMAN. *Northwestern Univ.*

3:00 **2530.** Presidential address. WILLIAM C. BOYD. *Boston Univ.*

Immunology Society Business Meeting

TUESDAY, 4:00 P.M.—BLACKSTONE, CRYSTAL BALLROOM

Joint Session of the Federation

TUESDAY, 8:00 P.M.—CONRAD HILTON, GRAND BALLROOM

Future Annual Meetings

Dates of Federation Annual Meetings for the next three years are: 1961: April 10–14; 1962: April 16–20; 1963: April 15–19.

Exhibits—Inspection Periods

Monday: 8:00 A.M. to 5:00 P.M.
Tuesday through Thursday: 8:45 A.M. to 5:00 P.M.
Friday: 8:45 A.M. to 12:00 NOON

Intersociety Sessions

See program, pages 426–443, for sessions on 'Atherosclerosis', 'Blood Clotting', 'Cytology', 'Endocrinology', 'Gastroenterology', 'Muscle', 'Neuropharmacology' and 'Tissue Culture', and for Intersociety symposia.

Wednesday Morning, April 13, 9:00 a.m.

Antigens and Antibodies II: Antibody Formation

WED. A.M.—BLACKSTONE, CRYSTAL BALLROOM

Chairman: T. N. Harris

9:00 **2531.** Synthesis and release of antibody by isolated lymph node cells. E. HELMREICH,* M. KERN AND H. N. EISEN. *Washington Univ.*

9:15 **2532.** A role for phospholipides in the uptake of amino acids by lymph node cells. HERMAN FRIEDMAN* AND WILLIAM L. GABY. *Albert Einstein Med. Ctr. and Hahnemann Med. Coll.*

9:30 **2533.** Role of eosinophil and plasma cell in antibody formation. ROBERT S. SPEIRS. *State Univ. of New York.* (Physiol.)

9:45 **2534.** Effect of appendix-shielding during body x-irradiation on splenic white-pulp recovery in hemolysin-forming rabbits. DIETER H. SÜSSDORF (intr. by J. S. GARVEY). *Argonne Natl. Lab. and California Inst. of Technol.*

10:00 **2535.** Factors governing antibody production in newly-hatched chicks by transferred in vitro stimulated adult homologous spleen cells. B. W. PAPERMASTER AND S. G. BRADLEY (intr. by DENNIS W. WATSON). *Univ. of Minnesota.*

10:15 **2536.** Inhibition of antibody formation by homologous gamma globulin. IGNATIUS L. TRAPANI* AND DAN H. CAMPBELL (intr. by J. B. LOEFER). *California Inst. of Technol.* (Physiol.)

10:30 **2537.** Exhaustion of specific antibody-producing capacity during a secondary antibody response. E. SERCARZ* AND A. H. COONS. *Harvard Univ.*

10:45 **2538.** Histologic study of the secondary response in the rabbit. P. A. WARD,* A. G. JOHNSON AND M. R. ABELL.* *Univ. of Michigan.*

11:00 **2539.** Bovine serum inoculation of chickens at different ages and its effect on the secondary response. HAROLD R. WOLFE, A. AMIN* AND A. P. MUELLER.* *Univ. of Wisconsin.*

11:15 **2540.** Prevention of secondary immune response with 6-mercaptopurine. E. S. LAPLANTE AND R. M. CONDIE (intr. by R. A. GOOD). *Univ. of Minnesota.*

11:30 **2541.** Effect of a reticuloendothelial system (RES) stimulant on antibody production. DANIEL A. BOROFF AND JAMES R. REILLY.* *New England Inst. for Med. Res. and New York State Conserv. Dept.*

11:45 **2542.** Quantitative aspects of oral immunization against bovine serum albumin (BSA). RICHARD S. FARR, WINIFRED DICKINSON* AND KEITH SMITH.* *Univ. of Pittsburgh.*

Enteroviruses

WED. A.M.—BLACKSTONE, MAYFAIR ROOM

Chairman: F. C. Robbins

9:00 **2543.** Effects of neutral red and light on polioviruses. EDWARD M. OPTON* AND ROBERT H. GREEN. *Yale Univ.*

9:15 **2544.** Multiplication of poliovirus in cells photosensitized by neutral red. DEREK CROWTHER (intr. by J. L. MELNICK). *Baylor Univ.*

9:30 **2545.** Differential inactivation of B-virus in suspensions of live poliovirus. C. W. HIATT (intr. by R. MURRAY). *Natl. Insts. of Health.*

9:45 **2546.** Fate of poliovirus adsorbed to HeLa cells. W. K. JOKLIK AND J. E. DARNELL, JR. (intr. by HARRY EAGLE). *Natl. Insts. of Health.*

10:00 **2547.** Mechanism of interference between certain enteroviruses in tissue culture. G. D. HSIUNG. *Yale Univ.*

10:15 **2548.** Formation of polio and Coxsackie virus in FL cells. JØRGEN FOGH AND DONALD C. STUART, JR. (intr. by RACHEL BROWN). *New York State Dept. of Health.*

10:30 **2549.** Correlations of in vitro markers of poliovirus strains and monkey neurovirulence. I. Comparison of vaccine and field strains. M. BENYESH-MELNICK* AND J. L. MELNICK. *Baylor Univ.*

10:45 **2550.** Correlations of in vitro markers of poliovirus strains and monkey neurovirulence. II. Intramuscular inoculation of vaccine progeny strains and serial spinal cord passage of t− strains. J. L. MELNICK AND M. BENYESH-MELNICK.* *Baylor Univ.*

11:00 **2551.** Characteristics and chemoprophylaxis of ECHO-9′ virus infection in mice. KENNETH W. COCHRAN AND JOHN T. HEADINGTON.* *Univ. of Michigan.*

11:15 **2552.** Comparative susceptibility of hamsters and mice to Coxsackie B-3 virus. THEODORE BURNSTEIN (intr. by M. MICHAEL SIGEL). *Variety Children's Res. Fndn.*

11:30 **2553.** Characteristics of ECHO 4 (Shropshire) virus isolated during epidemic of aseptic meningitis. ALMEN L. BARRON* AND DAVID T. KARZON. *Univ. of Buffalo.*

Wednesday Afternoon, April 13, 1:30 p.m.

Hypersensitivity I: Endotoxins

WED. P.M.—BLACKSTONE, CRYSTAL BALLROOM

Chairman: Baruj Benacerraf

1:30 **2554.** Endotoxin and its relationship to anaphylaxis in the mouse. JULIA M. EINBINDER,* CHARLES L. FOX, JR. AND CARL T. NELSON. *Columbia Univ. and New York Med. Coll.-Flower Fifth Ave. Hosps.*

1:45 **2555.** Induced histidine decarboxylase and *B. pertussis* sensitization of mice. R. W. SCHAYER AND O. H. GANLEY,* *Merck Inst.* (Physiol.)

2:00 **2556.** Tissue permeability changes produced by *B. pertussis* in mice. J. MUNOZ. *Montana State Univ.*

2:15 **2557.** Fatty acid ester groups in lipopolysaccharide endotoxins. HENRY TAUBER. *Communicable Dis. Ctr.* (Biochem.)

2:30 **2558.** Use of cellulose column chromatography for purification of the heat labile toxin of *Bordetella pertussis*. A. BANERJEA* AND J. MUNOZ. *Montana State Univ.*

2:45 **2559.** Relationship between chemical composition and

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biological properties of endotoxins. E. RIBI,* W. HASKINS,* K. MILNER* AND M. LANDY. *Rocky Mountain Lab. and Natl. Insts. of Health.*

3:00 **2560.** Generalized Shwartzman-like reaction following *S. marcescens* septicemia in a fatal burn. C. D. GRABER, W. T. TUMBUSCH* AND E. H. VOGEL, JR.* *U.S. Army Res. Unit, Texas.*

3:15 **2561.** Toxic and allergic properties of pollen extracts in the mouse. LEON S. KIND AND LUISE ROESNER.* *Univ. of California.*

3:30 **2562.** Passive homologous anaphylaxis in the mouse: studies on the 'latent period.' P. E. TREADWELL (intr. by A. F. RASMUSSEN, JR.). *Univ. of California.*

3:45 **2563.** Genetic influence on circulating antibody and anaphylaxis in the mouse. RICHARD M. ROTHBERG* AND DAVID W. TALMAGE. *Univ. of Chicago.*

4:00 **2564.** Histamine, 5-hydroxytryptamine and cortisol in mouse anaphylaxis. R. D. HIGGINBOTHAM (intr. by A. PACKCHANIAN). *Univ. of Texas.*

4:15 **2565.** Mechanism of anaphylaxis in the mouse. S. TOKUDA* AND R. S. WEISER. *Univ. of Washington.*

Myxoviruses

WED. P.M.—BLACKSTONE, MAYFAIR ROOM

Chairman: M. R. Hilleman

1:30 **2566.** Antigenic variants of influenza A virus. VI. Results of repeated passages starting with the same variant. DOROTHY HAMRE AND C. G. LOOSLI. *Univ. of Chicago.*

1:45 **2567.** A study in vitro of components in the transmission cycle of swine influenza virus. W. D. PETERSON, JR. (intr. by F. M. DAVENPORT). *Univ. of Michigan.*

2:00 **2568.** Interaction of myxoviruses with HeLa cells as revealed by fluorescent antibody. E. FREDERICK WHELOCK (intr. by IGOR TAMM). *Rockefeller Inst.*

2:15 **2569.** Variation in susceptibility to the induction of viral interference with variation in host age. K. MARILYN SMART* AND EDWIN D. KILBOURNE. *Cornell Univ.*

2:30 **2570.** Viral interference at a distant site? SIDNEY E. GROSSBERG,* EDWARD H. HOOK* AND ROBERT R. WAGNER. *Johns Hopkins, Minnesota and Cornell Univs.*

2:45 **2571.** Genetic determination of influenza viral morphology. EDWIN D. KILBOURNE AND JAMES S. MURPHY.* *Cornell Univ. and Rockefeller Inst.*

3:00 **2572.** Effect of oxidative controlled potential electrolysis on viruses. J. V. HALLUM* AND J. S. YOUNGNER. *Univ. of Pittsburgh.*

3:15 **2573.** Certain biological characteristics of myxovirus parainfluenza 3. F. W. DENNY, JR. *Western Reserve Univ.*

3:30 **2574.** Biophysical and serological properties of influenza virus and related host materials. L. H. FROMMHAGEN* AND E. H. LENNETTE. *California State Dept. of Publ. Health.*

3:45 **2575.** Development and applications of new parenteral adjuvants. III. Factors involved in enhancement of antigenicity of influenza virus by hexadecylamine. K. E. JENSEN AND A. F. WOODHOUR.* *Chas. Pfizer and Co.*

4:00 **2576.** Development and applications of new parenteral adjuvants. IV. Influenza vaccine with HDA in oil emulsions. A. F. WOODHOUR,* J. WARREN AND K. E. JENSEN. *Chas. Pfizer and Co.*

4:15 **2577.** Advantages of mineral oil emulsified influenza virus vaccines when used in a two dose schedule of inoculation. A. V. HENNESSY AND F. M. DAVENPORT. *Univ. of Michigan.*

Wednesday Evening, April 13, 8:00 p.m.

SPECIAL IMMUNOLOGY SESSION

Factors Concerned in the Host-Parasite Relationship

WED., 8:00 P.M.—BLACKSTONE, CRYSTAL BALLROOM

Chairman: H. M. Rose

8:00 **2578.** Detection of viral destruction of cells in cultures without overt cytopathology. D. R. DUBBS* AND W. F. SCHERER. *Univ. of Minnesota.*

8:15 **2579.** Characteristics of a persisting filtrable agent in a continuous culture of mouse cells. H. F. MAASSAB. *Univ. of Michigan.*

8:30 **2580.** Latent polyoma virus infection of mouse fibroblasts in tissue culture. H. E. PEARSON. *Univ. of Southern California and Los Angeles Co. Hosp.*

8:45 **2581.** Poliovirus inhibition by monkey nervous tissue suspension. S. BARON AND R. J. LOW (intr. by G. A. HOTTLE). *Natl. Insts. of Health.*

9:00 **2582.** Role of antibody in the persistence of HeLa cell cultures infected with adenovirus type 2. A. SCHLUEDERBERG (intr. by B. ROIZMAN). *Johns Hopkins Univ.*

9:15 **2583.** Immunological tolerance and virus infection with lymphocytic choriomeningitis in mice. J. E. HOTCHIN, H. WEIGANE AND L. M. BENSON (intr. by S. M. COHEN). *New York State Dept. of Health.*

9:30 **2584.** Increased susceptibility of newborn mice to infection with polio and LCM viruses after pretreatment with adult mouse lymphoid tissue. A. PARAF,* R. E. BILLINGHAM AND H. KOPROWSKI. *Wistar Inst.*

Thursday Morning, April 14, 9:00 a.m.

Antigens and Antibodies III

THURS. A.M.—BLACKSTONE, MAYFAIR ROOM

Chairman: Sidney Raffel

9:00 **2585.** Quantitative studies of inhibition of the fibroin-rabbit anti-fibroin system. JOHN J. CEBRA (intr. by M. W. CHASE). *Rockefeller Inst.*

9:15 **2586.** Phylogenetic pathway of lens proteins. W. MANSKI, T. P. AUERBACH* AND S. P. HALBERT. *Columbia Univ.*

9:30 **2587.** Two normal human 7S γ-globulin antigens and their immunochemical relationship to two myeloma γ-globulins revealed by rhesus monkey precipitins to normal 7S γ-globulins. SHELDON DRAY. *Natl. Insts. of Health.*

9:45 **2588.** Detection of antibodies directed against salicylates. LAWRENCE M. WEINER AND HOMER HOWES (intr. by M. GOODMAN). *Wayne State Univ.*

10:00 **2589.** Some physicochemical properties of electrophoretically purified Vi antigen. F. G. JARVIS, M. T. MESENKO AND T. D. PERRINE (intr. by C. L. LARSON). *Rocky Mountain Lab.*

10:15 **2590.** Use of complement fixation for study of polysaccharide structure. ELEANOR WASSERMAN* AND LAWRENCE LEVINE. *Brandeis Univ.*

10:30 **2591.** Determinants of immunological specificity in the type VI pneumococcal system. PAUL REBERS,* ESTHER HURWITZ* AND MICHAEL HEIDELBERGER. *Rutgers Univ.*

10:45 **2592.** Similarities among mammalian acute phase proteins. E. GOTSCHLICH* AND C. A. STETSON. *New York Univ.*

11:00 **2593.** Qualitative aspects of C-reactive proteins. C. W. FISHEL AND N. A. VEDROS (intr. by R. THOMPSON). *Univ. of Colorado.*

11:15 **2594.** Phagocytosis of inert bentonite particles following the adsorption of various antigens. ELIZABETH V. POTTER (intr. by G. H. STOLLERMAN). *Northwestern Univ.*

11:30 **2595.** Fractionation of allergenic proteins of castor seed. LAURENCE L. LAYTON,* FLOYD DEEDS AND LLOYD MOSS.* *Western Reg. Res. Lab. and Stanford Res. Inst.* (Biochem.)

11:45 **2596.** Antigenicity of estrone-protein conjugates. L. GOODFRIEND* AND A. H. SEHON. *McGill Univ.*

Blood Groups and Isoantibodies

THURS. A.M.—MORRISON, PARLORS B AND C

Chairman: Philip Levine

9:00 **2597.** Acquisition of blood-group B-like bacterial antigens by human A and O erythrocytes. GEORG F. SPRINGER AND NORMA J. ANSELL.* *Univ. of Pennsylvania.*

9:15 **2598.** M and N agglutinin inhibition by human kidney and erythrocyte extracts. KARLHEINZ STALDER* AND GEORG F. SPRINGER. *Univ. of Pennsylvania.*

9:30 **2599.** A change in character of the anti-A iso-antibody following immunization with blood group A substance. MARY B. GIBBS (intr. by A. S. BENENSON). *Walter Reed Army Inst. Res.*

9:45 **2600.** Purification of blood group substances by chromatography of pseudomucinous ovarian cyst fluids and saliva. HAROLD BAER AND URSULA RASMUSSEN.* *Tulane Univ.*

10:00 **2601.** Quantitative hemagglutination studies in the Rh system. ROBERT SILBER (intr. by F. M. BOZEMAN). *Walter Reed Army Inst. Res.*

10:15 **2602.** Interference with immune responses to hemoantigens. KURT STERN. *Chicago Med. Sch. and Mt. Sinai Med. Res. Fndn.*

10:30 **2603.** Heterogeneity of Rh_0(D) antigen. S. P. MASOUREDIS. *Univ. of California.*

10:45 **2604.** Identification of erythrocyte blood group antigens and demonstration of minor cell populations with fluorescent antibodies. F. COHEN, W. W. ZUELZER AND M. EVANS (intr. by C. S. STULBERG). *Child Res. Ctr. and Wayne State Univ.*

11:00 **2605.** Detection of red cell agglutinogens in chickens by lectins. S. L. SCHEINBERG AND R. P. RECKEL (intr. by N. R. ELLIS). *U.S. Dept. of Agriculture* (Biochem.)

11:15 **2606.** Cold agglutinins in normal subjects in relation to previous illness, blood group and agglutinins for trypsinated RBC. W. N. CHRISTENSON (intr. by HAROLD G. WOLFF). *New York Hosp.-Cornell Univ.* (Physiol.)

11:30 **2607.** 'R-1 factor' a histocompatibility hemagglutinogen in the rat. ARTHUR E. BOGDEN* AND PAUL M. APTEKMAN. *Biochem. Res. Fndn. and Wistar Inst.*

Thursday Afternoon, April 14, 1:30 p.m.

Hypersensitivity II

THURS. P.M.—BLACKSTONE, CRYSTAL BALLROOM

Chairman: R. A. Good

1:30 **2608.** Immunologic and morphologic consequences of prolonged daily injection of bovine albumin (BSA). FRANK DIXON, WILLIAM O. WEIGLE, JOCINTO J. VASQUEZ AND JOSEPH D. FELDMAN. *Univ. of Pittsburgh.*

1:45 **2609.** Immunologic nature of arthritis induced in rats by mycobacterial adjuvant. BYRON H. WAKSMAN AND JOHN T. SHARP.* *Harvard Univ.*

2:00 **2610.** A nonsuppurative necrosis of retroperitoneal fat in guinea pigs occurring after injection of trypanosomes in adjuvants. MURRAY M. LIPTON AND ALEX J. STEIGMAN. *Univ. of Louisville.*

2:15 **2611.** Progressive immunization reaction in the rabbit eye. ARTHUR M. SILVERSTEIN, LORENZ E. ZIMMERMAN AND SYLVIA WELTER (intr. by F. D. MAURER). *Armed Forces Inst. of Pathol.*

2:30 **2612.** Preparation of purified ragweed allergens. D. J. LEA (intr. by A. H. SEHON). *McGill Univ.*

2:45 **2613.** Immune responses to repository injection of ragweed antigens. H. L. CRIEP AND H. FRIEDMAN.* *VA Hosp. and Univ. of Pittsburgh and Einstein Med. Ctr.*

3:00 **2614.** Precipitin reaction with human antibody to ragweed. ROBERT FEINBERG AND JOHN CLINE. *Walter Reed Army Inst. Res.*

3:15 **2615.** Chromatographic fractionation of sera from ragweed-sensitive individuals. A. H. SEHON, L. PERELMUTTER* AND S. O. FREEDMAN.* *McGill Univ.*

3:30 **2616.** Immunoelectrophoretic studies of serum sickness antibodies. NOEL R. ROSE AND CARL E. ARBESMAN.* *Univ. of Buffalo.*

3:45 **2617.** Production and transfer of delayed hypersensitivity to modified human serum proteins in humans. PAUL H. MAURER. *Univ. of Pittsburgh.*

4:00 **2618.** Is delayed hypersensitivity an intermediate stage in development of circulating antibody? S. B. SALVIN AND R. F. SMITH.* *Rocky Mountain Lab.*

Complement. Properdin

THURS. P.M.—BLACKSTONE, MAYFAIR ROOM

Chairman: M. M. Mayer

1:30 **2619.** Isolation of a new factor in the properdin complement system. M. A. LEON AND A. RANSBY, JR.* *St. Luke's Hosp., Cleveland.*

1:45 **2620.** Antibody requirement for interaction of properdin and bacteria. RALPH J. WEDGWOOD. *Western Reserve Univ.*

2:00 **2621.** Comparison of zymosan and bacteriophage assays in serum properdin determinations in normal subjects and patients with leukemia and lymphoma. A. L. BALTCH, A. HASSIRDJIAN, W. OSBORNE AND P. BUNN (intr. by P. WEHRLE). *State Univ. of New York.*

2:15 **2622.** Isolation of a heat labile serum component which interacts with γ-globulin aggregates. H. J. MULLER-EBERHARD AND H. G. KUNKEL. *Rockefeller Inst.*

2:30 **2623.** A precipitin for aggregated human fraction II, present in normal human sera, and with properties like the first component of complement. A. TARANTA AND H. S. WEISS (intr. by H. F. WOOD). *New York Univ.*

2:45 **2624.** Inhibition of human C'1-esterase by its partially purified human serum inhibitor. I. H. LEPOW. *Western Reserve Univ.*

3:00 **2625.** Further purification of a human serum inhibitor of C'1-esterase. J. PENSKY (intr. by I. H. LEPOW). *Western Reserve Univ.*

3:15 **2626.** Initiation of Donath-Landsteiner hemolysis by C'1-esterase and inhibition by inhibitor of C'1-esterase. C. F. HINZ, JR.,* M. E. PICKEN* AND I. H. LEPOW. *Western Reserve Univ.*

3:30 **2627.** Kinetic studies of the reaction between $EAC'_{1,4}$ and purified second component of guinea pig complement (C'_2). T. BORSOS AND H. J. RAPP. *Johns Hopkins Univ.*

3:45 **2628.** Binding of radioactive complement components. F. HAUROWITZ AND J. D. HAWKINS.* *Indiana Univ.* (Biochem.)

4:00 **2629.** Role of Ca^{++} and Mg^{++} in complement fixation tests. E. H. FIFE, JR. (intr. by E. L. BECKER). *Walter Reed Army Inst. Res.*

4:15 **2630.** Efficiency of complement (C') at different concentrations of sensitized erythrocytes (EA). D. L. MCVICKAR (intr. by C. F. PAIT). *UCLA.*

Tickets

Tickets for group breakfasts, luncheons and dinners, Society dinners, Smoker, and other Federation functions will be on sale in the registration area, Conrad Hilton.

Intersociety Sessions

See Program, pages 426–443, for sessions on 'Atherosclerosis', 'Blood Clotting', 'Cytology', 'Endocrinology', 'Gastroenterology', 'Muscle', 'Neuropharmacology', and 'Tissue Culture'.

Friday Morning, April 15, 9:00 a.m.

Hypersensitivity III

FRI. A.M.—BLACKSTONE, MAYFAIR ROOM

Chairman: B. H. WAKSMAN

9:00 **2631.** Significance of fibrinolysis in guinea pig anaphylaxis. K. L. BURDON, J. P. MCGOVERN,* G. D. BARKIN* AND W. M. MEYERS.* *Baylor Univ.*

9:15 **2632.** Passive cutaneous anaphylaxis in guinea pigs sensitized with solutions of antigen and antibody. LEON T. ROSENBERG* AND SIDNEY RAFFEL. *Stanford Univ.*

9:30 **2633.** Antibody fixation. ZOLTAN OVARY. *New York Univ.*

9:45 **2634.** Histamine release and intracellular potentials during anaphylaxis in the isolated heart. GEORGE A. FEIGEN, E. M. VAUGHAN WILLIAMS,* JANICE K. PETERSON* AND C. B. NIELSEN. *Stanford Univ.* (Physiol.)

10:00 **2635.** Immunochemical specificity in delayed hypersensitivity. SIDNEY LESKOWITZ. *Harvard Univ.*

10:15 **2636.** Cellular transfer between homozygous and heterozygous guinea pigs with regard to contact-type hypersensitivity and antibody production. MERRILL W. CHASE. *Rockefeller Inst.*

10:30 **2637.** Skin reactions and in vitro leukocytolysis with fractions from culture filtrate of *M. tuberculosis* in guinea pigs sensitized with heat-killed tubercle bacilli. BERNARD W. JANICKI (intr. by A. M. GRIFFIN). *VA Hosp., Washington.*

10:45 **2638.** Antibody production and skin hypersensitivity following vaccinia infection in guinea pigs. ROBERT FRIEDMAN AND SAMUEL BARON (intr. by C. P. LI). *Natl. Insts. of Health.*

11:00 **2639.** Rapid induction of allergic encephalomyelitis in rats without the use of mycobacteria. JENNIFER BELL* AND PHILIP Y. PATERSON. *New York Univ. and Natl. Insts. of Health.*

11:15 **2640.** Isolation of purified protein with allergic encephalitogenic activity from bovine spinal cord. ELIZABETH ROBOZ-EINSTEIN, D. ROBERTSON* AND J. DECAPRIO.* *Univ. of California and Stanford Univ.* (Biochem.)

11:30 **2641.** Routes of antigen administration in production of experimental allergic encephalomyelitis and antibody. R. M. CONDIE,* D. YOUEL* AND R. A. GOOD. *Univ. of Minnesota.*

11:45 **2642.** *Pseudomonas pseudomallei* as an adjuvant in the production of allergic encephalomyelitis. ALEX J. STEIGMAN AND MURRAY M. LIPTON. *Univ. of Louisville.*

Antigen-Antibody Reactions II

FRI. A.M.—BLACKSTONE, HUBBARD ROOM

Chairman: Fred Karush

9:00 **2643.** Serological correspondence and zone displacement in complex precipitating systems. ROBERT K. JENNINGS AND ESTHER ARDITI.* *Chicago Med. Sch.*

9:15 **2644.** Coagulated specific complexes as adsorbents for antigen. G. BONAR SUTHERLAND (intr. by CHARLES LEONE). *Univ. of Kansas.*

9:30 **2645.** Enhancing, additive and antagonistic effects of combinations of *Salmonella* or *Proteus* immune sera in affording passive mouse protection. R. LIEBERMAN AND N. MANTEL (intr. by D. J. DAVIS). *Natl. Insts. of Health.*

9:45 **2646.** Degradation of I^{131}-labeled immune γ-globulin in mice. GERONIMO TERRES (intr. by RUTH DREW). *Brookhaven Natl. Lab.*

10:00 **2647.** Measurement of primary binding capacity of antibodies directed against streptococcal M protein. HOWARD M. GREY (intr. by RICHARD S. FARR). *Univ. of Pittsburgh.*

10:15 **2648.** Function of N-terminal lysine in ribonuclease immune reactivity. RAY K. BROWN. *New York State Dept. of Health.* (Biochem.)

10:30 **2649.** Conversion of precipitating to nonprecipitating antibody. JACOB J. PRUZANSKY,* SAMUEL M. FEINBERG AND NORMA WOJCIK.* *Northwestern Univ.*

10:45 **2650.** Effect of different 'contact conditions' on the bluetongue virus-antibody reaction. S. E. SVEHAG (intr. by J. R. GORHAM). *Washington State Univ.*

11:00 **2651.** Rate of disappearance of Cr^{51}-tagged erythrocytes in rabbits rendered unresponsive to iso-antigens. CARL COHEN AND HARRY C. GURNEY (intr. by M. C. DODD). *Battelle Mem. Inst.*

11:15 **2652.** Effect of prolonged immunization on in vitro and in vivo properties of rabbit antimouse erythrocyte serum. ISRAEL DAVIDSOHN AND CHANGLING LEE.* *Chicago Med. School and Mt. Sinai Hosp.*

11:30 **2653.** Validity of 50 per cent endpoints for complement fixation procedures. STANLEY MARCUS AND WILLIAM WU.* *Univ. of Utah.*

11:45 **2654.** Role of complement in leukocyte-erythrocyte mixed agglutination. PARVIZ LALEZARI* AND THEODORE H. SPAET. *Montefiore Hosp.* (Physiol.)

HOSPITALITY PROGRAM FOR WOMEN

Registration for wives of members and non-members attending the Chicago Meeting will be as follows:

Hospitality Lounge, Rooms 512-513, Conrad Hilton, on Sunday, April 10, noon to 10:00 P.M., and on Monday 8:00 A.M. to 5:00 P.M.
Main Registration Area, Conrad Hilton, from Tuesday through Friday.

Tickets for planned events will be available in the Hospitality Lounge on Sunday and Monday, and in the main registration area for the rest of the week. The Hospitality Lounge will be open for the entire week of the Meeting. Facilities for card-playing will be available in the Lounge for those not wishing to participate in the planned program. Busses for scheduled events will leave from the Conrad Hilton Hotel.

Program

Monday, April 11—10:00 A.M.–12 NOON
Guests of the Federation at a Coffee Hour in the Hospitality Lounge
Tuesday, April 12—8:30 A.M.–4:00 P.M.
Guests of Abbott Pharmaceutical Company for a tour along Chicago's Lake Shore Drive and north suburbs; a tour of the Abbott plant, and luncheon (limited to 80 guests)
Wednesday, April 13—2:00–4:30 P.M.
Guests of the Federation for a conducted tour of the Art Institute, followed by tea and reception
Thursday, April 14—12:30–4:00 P.M.
Luncheon in a private dining room, followed by a conducted tour of the Museum of Science and Industry (Cost, $3.00.)

WOMEN'S HOSPITALITY COMMITTEE, FIFTH INTERNATIONAL CONGRESS ON NUTRITION

WASHINGTON D. C., SEPTEMBER 1–7, 1960

MEETING: WEDNESDAY, April 13, 10:00–11:30 A.M.
Private Dining Room 1, third floor, Conrad Hilton Hotel

All wives of members of the American Institute of Nutrition and of the American Society of Biological Chemists are invited to attend this meeting and to hear reports of the Planning Committee.

Exhibits

DIRECTORY OF EXHIBITORS *and* SPACE LOCATIONS

for the meeting of the Federation of American Societies for Experimental Biology—The Conrad Hilton Hotel, Chicago, Illinois • April 11 to 15, 1960

Exhibits will be open as follows:

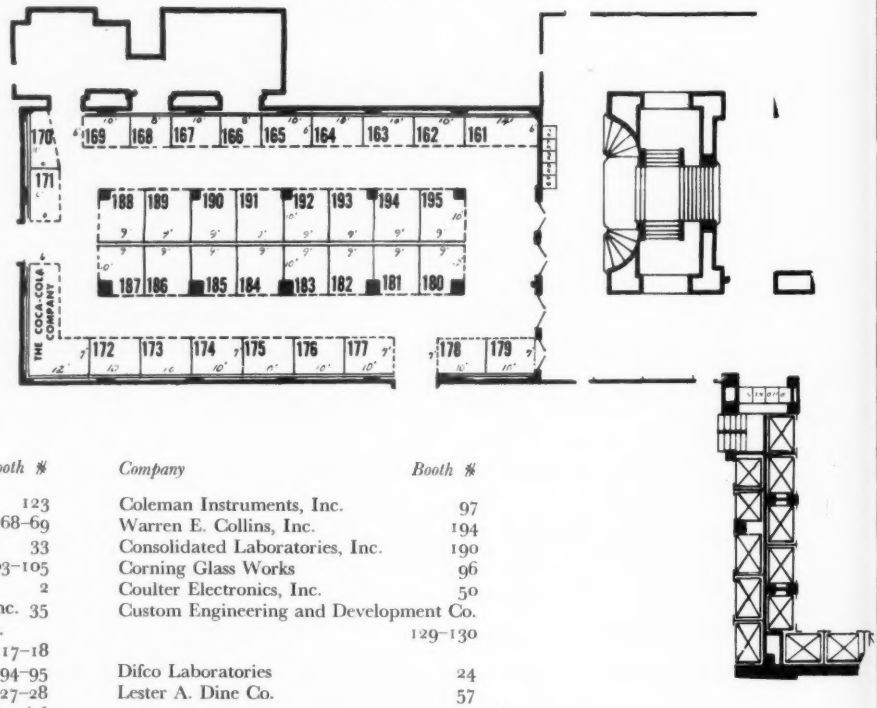
MONDAY: 8:00 a.m.–5:00 p.m.

TUESDAY: 8:45 a.m.–5:00 p.m.

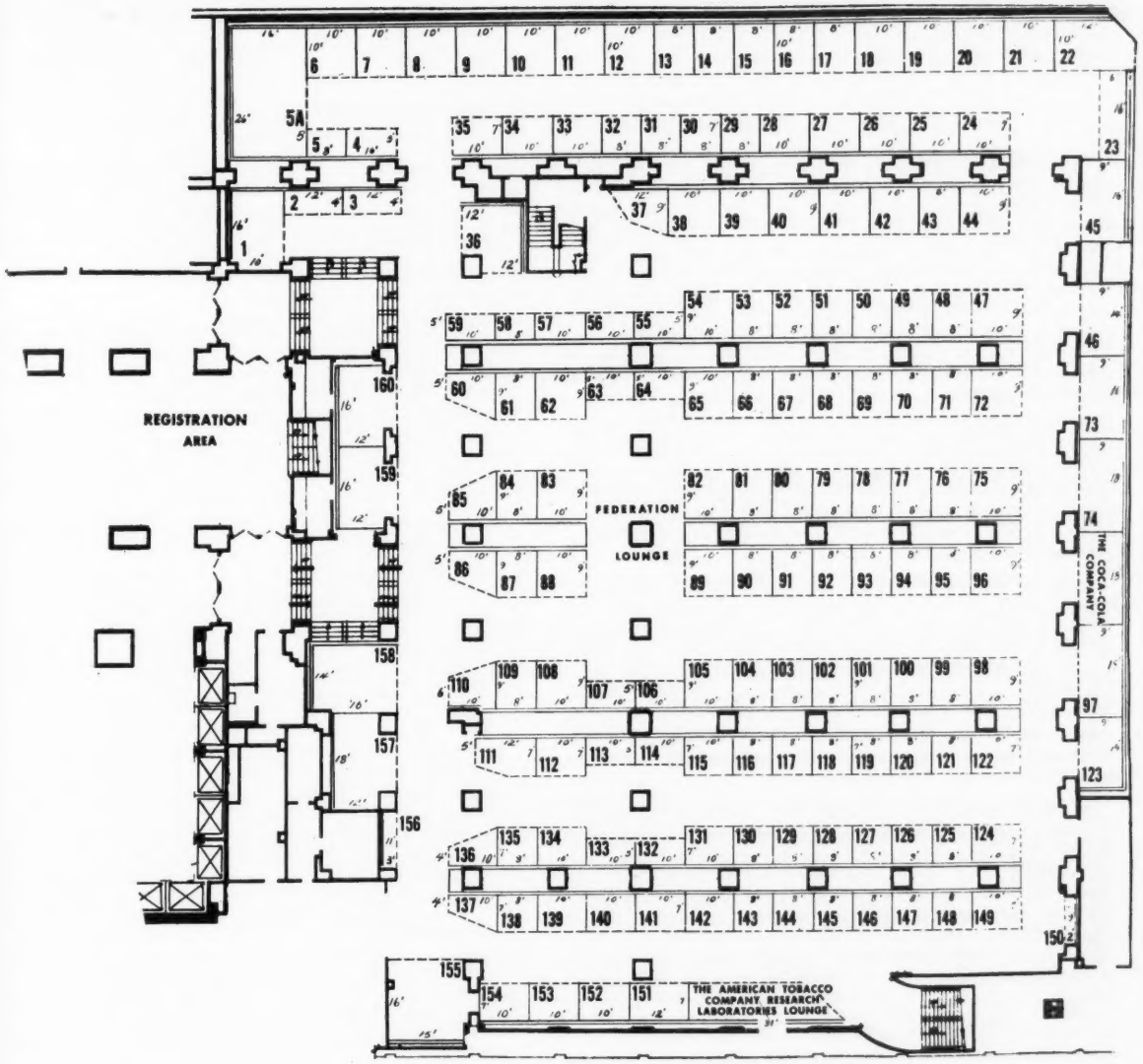
WEDNESDAY: 8:45 a.m.–5:00 p.m.

THURSDAY: 8:45 a.m.–5:00 p.m.

FRIDAY: 8:45 a.m.–12:00 noon



Company	*Booth #*
Academic Press	123
Acme Metal Products, Inc.	68–69
Advanced Instruments, Inc.	33
Aloe Scientific	103–105
Allied Mills, Inc.	2
American Electronic Laboratories, Inc.	35
American Instrument Company, Inc.	17–18
American Optical Company	94–95
Americal Sterilizer Company	27–28
American Tobacco Company	Special
Ames Research Laboratory	56
H. Reeve Angel & Co., Inc.	161
Animatic Animal Care Products, Inc.	171
Applied Physics Corporation	127–128
Association of American University Presses	26
Atomic Associates, Inc.	86–88; 106–110
Baltimore Biological Laboratory, Inc.	31
Barnstead Still and Sterilizer Co.	174
Bausch & Lomb Optical Co.	25
Beckman, Scientific & Process Instruments Div.	186–187
Beckman, Spinco Div.	101–102
Bellco Glass Inc.	19
Bethlehem Apparatus Co., Inc.	172
Biophysical Electronics, Inc.	53
Blakiston Div., McGraw-Hill Book Co.	116
S. Blickman Inc.	89–90
Brinkmann Instruments, Inc.	124–125
Bronwill Scientific	121
Burgess Publishing Co.	23
Cahn Instrument Co.	5
California Corp. for Biochemical Research	74
Canal Industrial Corp.	119
Case Laboratories, Inc.	193
Coca-Cola Co.	Special
Coleman Instruments, Inc.	97
Warren E. Collins, Inc.	194
Consolidated Laboratories, Inc.	190
Corning Glass Works	96
Coulter Electronics, Inc.	50
Custom Engineering and Development Co.	129–130
Difco Laboratories	24
Lester A. Dine Co.	57
E. I. du Pont de Nemours & Co.	169
Eberbach Corp.	122
E-C Apparatus Co.	155
Electric Hotpack Co., Inc.	34
Electronics for Medicine, Inc.	22
Epsco Worcester	100
Falcon Plastics Co.	32
Fisher Scientific Co.	91–93
J. Melvin Freed, Inc.	115
Gilford Instrument Laboratories, Inc.	143
Gilson Medical Electronics	13–15
Graf-Apsco Co.	153
Grason-Stadler Co., Inc.	195
Grass Instrument Co.	78–80
Grune & Stratton, Inc.	137
William J. Hacker & Co., Inc.	113
Harvard Apparatus Co., Inc.	134
Heinicke Instruments Co.	7
Industrial Systems Co.	156
Institute of Public Information	154
Instrumentation Associates	36
International Business Machines Corp.	1
International Equipment Co.	66–67
W. H. Kessel & Co.	182
Kimble Glass Co.	72
Kontes Glass Co.	10–11
David Kopf Instruments	19
Labline, Inc.	11
Laboratory Glass & Instruments Corp.	7
Arthur S. La Pine and Co.	148–14
Lea & Febiger	6
Lehigh Valley Electronics	13
E. Leitz, Inc.	6
Linbro Chemical Co.	14
Linde Co., Div. of Union Carbide Corp.	16
J. B. Lippincott Co.	6
Little, Brown & Co.	18
L K B Instruments, Inc.	18
Lourdes Instrument Corp.	111–11
Macmillan Co.	15
Josiah Macy, Jr. Foundation	4
Meinecke and Co., Inc.	5
Metalwash Machinery Corp.	146–14
Mettler Instrument Corp.	9
Microbiological Associates, Inc.	3
Microchemical Specialties Co.	16
Micro-Metric Instrument Co.	14
Millipore Filter Corp.	19
C. V. Mosby Co.	98–9



Company	*Booth #*
Nalge Co., Inc.	164
National Aniline Div. of Allied Chemical Corp.	41
National Instrument Laboratories, Inc.	46
New Brunswick Scientific Co., Inc.	48–49
Nuclear-Chicago Corp.	159–160
Nuclear Measurements Corp.	157
Offner Electronics Inc.	4
Organon Inc.	64
Oxford University Press, Inc.	37
Pabst Laboratories	58
Packard Instrument Co., Inc.	5A
Paxton Processing Co., Inc.	16
Pentex Incorporated	52
Pergamon Press Inc.	166
Phipps & Bird, Inc.	140
Picker X-ray Corp.	20–21
Porter-Mathews Co., Inc.	29
Precision Scientific Co.	151–152
Professional Tape Co., Inc.	12
Publishers' Authorized Bindery Service, Ltd.	181
Quaracell Products, Inc.	150
Ralston Purina Co.	38
Raytheon Co.	126
Research Specialties Co.	8–9
Sanborn Co.	75–76
Sandoz Pharmaceuticals	188–189
W. B. Saunders Co.	135–136
Schwarz Bioresearch, Inc.	183
Schwarzer Co.	162
Scientific Glass Apparatus Co., Inc.	175
Scientific Industries, Inc.	117–118
Scientific Products	138–139
Sigma Chemical Co.	131
Ivan Sorvall, Inc.	61–62
E. R. Squibb & Sons	133
A. E. Staley Manufacturing Co.	44
C. H. Stoelting Co.	120
Technicon Controls, Inc.	83–85
Arthur H. Thomas Co.	81–82
Torsion Balance Co.	170
Tracerlab Inc.	39–40
Tri-R Instruments	42
Vanguard Instrument Co.	167
Virtis Company, Inc.	176
Volk Radiochemical Co.	45
Warner-Chilcott, General Diagnostics Div.	54
Waters Corp.	77
Welwyn International Inc.	177
John Wiley & Sons, Inc.	51
Wilkens-Anderson Co.	173
Will Corp.	6
Williams & Wilkins Co.	141
Wilmot Castle Co.	178–179
Worthington Biochemical Corp.	43
R. G. Wright Co., Inc.	184–185
Yellow Springs Instrument Co., Inc.	55
Carl Zeiss, Inc.	70–71

INDUSTRIAL SCIENTIFIC EXHIBITS

ACADEMIC PRESS, New York City (*Booth 123*), publishers, invite you to inspect new publications: *The Bacteria*, vol. 1, Gunsalus and Stanier, editors; *The Enzymes*, (2nd ed.), vols. 2 and 3, Boyer *et al.*, editors; *The Plasma Proteins*, Putnam, editor; two supplementary volumes to *The Alkaloids*, Manske, editor; *The Nucleic Acids*, vol. 3, Chargaff and Davidson, editors; *Comparative Biochemistry*, vol. 2, Florkin and Mason, editors; *Mineral Metabolism*, vol. 1, Comar and Bronner, editors. Among new journals are: *Analytical Biochemistry*; *Biochemical and Biophysical Research Communications*, second volume; *Journal of Molecular Biology*. Sample reprints of their affiliated firm, JOHNSON REPRINT CORPORATION, will also be shown.

ACME METAL PRODUCTS, INC., Chicago, Ill. (*Booths 68–69*), will exhibit their well-known line of quality cages, racks, and animal-room equipment. They are in their 48th year and are engaged exclusively in the fabrication of quality cage equipment for all laboratory animals. Their quality cages are used in leading research centers, medical schools, hospitals and pharmaceutical laboratories.

ADVANCED INSTRUMENTS, INC., Newton Highlands, Mass. (*Booth 33*). Ultra-precise electrolyte instruments in actual operation for: 0.002 pH, the new Vibron pH Electrometer, with electrodes for anaerobic blood and, if ready, P_{CO_2} and Na^+; precise osmolarity, widely-used, direct-reading Fiske osmometer: ±1 mOsm repeatability, sample sizes down to 0.2 ml; precise Na^+ and K^+, their new, high stability flame photometer: smallest instrument, featuring big instrument repeatability. For recording these phenomena: Texas Instrument's Rectiriter and new ultrasensitive Servoriter.

ALOE SCIENTIFIC, St. Louis, Mo. (*Booths 103–105*) will demonstrate new and recent devices for the life-science field such as the Nitralizer, pulmonary function apparatus; time lapse photography; new blood clotting instrument; new blood pH apparatus; micro and ultra-micro biochemical equipment; micro bisecting instruments; de Fonbrune micromanipulator and microforge; ultrasonic cleaning equipment; electro-polarizer for bioclinical studies; new spirometer for small animals; recent advances in fluorescence microscopy; plus other new items for the biological field.

ALLIED MILLS, INC., Chicago, Ill. (*Booth 2*), features Wayne laboratory diets, which are supported by nearly a generation of research and experience in the field and are used universally in the research profession as well as by leading animal breeders. Each diet is carefully formulated and manufactured to meet the exacting requirements of laboratory and animal-breeder feeding. Representatives will be on hand to answer your questions.

AMERICAN ELECTRONIC LABORATORIES, INC., Philadelphia, Pa. (*Booth 35*), exhibit their entire line of biophysical research apparatus, including the Model 104A laboratory stimulator, and introducing the new basic laboratory stimulator for use where reliability and price are equally important. DC amplifiers for microelectrode work, including the new Model 257 electrometer amplifier and the battery-operated amplifier for student use; cuvette oximeter with the new reducing tenometer; syringe puller accessories; and the intracardiac phonocatheters and hydrogen detection catheters, will be shown.

AMERICAN INSTRUMENT COMPANY, INC., Silver Spring, Md. (*Booths 17–18*): New serum agar measuring integrator for the quantitative measurement of Aminco-Chemical procedures such as hypogammaglobulemia and other antibody reactions; research gas chromatograph, with high temperature columns, utilizing various detectors and liquid injection systems; spectro-phosphorimeter, for recording of spectra and decay of phosphorescent emission from liquids; Meniscomatic buret—direct digital reading of delivered titrant; Warburg apparatus—compact 9-manometer model; rotary Kjeldahl apparatus for digestion and distillation.

AMERICAN OPTICAL COMPANY, Instrument Div., Buffalo, N. Y. (*Booths 94–95*), will demonstrate instrumentation for fluorescence microscopy suitable for both tagged antibody and exfoliative cytology techniques. The AO Baker interference microscope will be demonstrated, with both shearing and double-focus systems. In addition to a major selection of AO Spencer phase, laboratory and stereoscopic microscopes and photomicrographic equipment, they will also exhibit their new surgical microscope and automatic microtome knife sharpener.

AMERICAN STERILIZER COMPANY, Erie, Pa. (*Booths 27–28*), will exhibit equipment designed to meet basic biological research needs, including: sterilization—their laboratory sterilizers for steam, gas and hot-air sterilization; cultivation—Biogen for continuous culture of microorganisms; isolation—simplified flexible film isolator for maintenance of germ-free life techniques; preservation—freeze-dry equipment for controlled lyophilization of microorganisms and chemicals; also distilled-water equipment and Spordex, the biological index for determining sterilization efficiency.

AMERICAN TOBACCO COMPANY, Department of Research and Development, Richmond, Va. (*special area*), will feature a 36-picture display in color depicting the growing and processing of tobacco from seed bed to cigarette. Technical literature, including the latest findings on the principles of cigarette smoke filtration, will be available for distribution. Attending representatives will welcome questions on the role of research and control in the manufacture of quality cigarettes by their company.

AMES RESEARCH LABORATORY, Elkhart, Ind. (*Booth 56*). Expanding applications of tests for ketone bodies. Ketone bodies appear in increased quantities in urine, blood, serum, milk and other secretions in a variety of metabolic disturbances. The exhibit will describe various applications of tests for ketone bodies in man and animals. Simple test procedures for ketone bodies will be demonstrated.

H. REEVE ANGEL & CO., INC., Clifton, N.J. (*Booth 161*), will display the new ion exchange celluloses, silicone treated papers, glass fiber papers, their regular line of laboratory filter papers, as well as their new ion exchange resin loaded papers for chromatography. They will also exhibit several pieces of National Appliance apparatus, including the new chromatography oven and air flow incubator.

ANIMATIC ANIMAL CARE PRODUCTS, INC., New Orleans, La. (*Booth 171*), introduce a new system of caging. It combines virtually all features ordinarily requiring cages of several designs. Unique, new design features provide outstanding visibility, serviceability, and appearance characteristics. Also, a collapsable, all-purpose cage for medium-sized animals will fulfill a genuine need in all laboratories.

APPLIED PHYSICS CORPORATION, Monrovia, Calif. (*Booths 127–128*). The Cary Model 14 recording spectrophotometer covering the wavelength range 1860A–2.65 microns. The Cary Model 31 vibrating reed electrometer for precise pH de-

termination and for measurement of mass spectrometer ion currents will also be shown.

ASSOCIATION OF AMERICAN UNIVERSITY PRESSES, New York City (*Booth 26*). A joint exhibit of recent books in the fields of biological science, biochemistry, medical and other sciences published by University Presses, each of which is a separate publishing organization and a member of their Association. Books may be ordered at their booth or directly from the publishing press. A check list of the books on display is available.

ATOMIC ASSOCIATES, INC., Valley Stream, N. Y. (*Booths 86–88 and 106–110*), will coordinate the combined displays of the following companies: Baird-Atomic, with various atomic counting instruments and qualitative analytical systems including a liquid scintillation spectrometer; Atomic Accessories, with chromatogram scanners, GM tubes, dosimeters, sample preparation equipment, survey meters, scintillation counters, low background systems, radiation mannikins and accessory equipment; New England Nuclear, with radiochemicals. Personnel will be available to discuss synthesis problems, analytical and tracer problems, and the new radioisotopes from France.

BALTIMORE BIOLOGICAL LABORATORY, INC., DIV. OF BECTON, DICKINSON & CO., Rutherford, N.J. (*Booth 31*), will feature Yale sterile disposable needles; the all-glass Hypak sterile disposable syringe-needle combination; dehydrated and prepared culture media; Sensi-Disc for microbial sensitivity testing; animal blood products; diagnostic reagents; Vacutainer specimen tubes; Vacutainer culture bottles; sterile disposable blood lancets; B-D Dilupettes; medical grade vinyl and polyethylene tubing; ACE medical gloves, and other allied products. Their representatives will be on hand to provide detailed information about all products and their applications.

BARNSTEAD STILL AND STERILIZER CO., Boston, Mass. (*Booth 174*), will exhibit water purification equipment for the scientific laboratory. Water stills, four types of disposable-cartridge demineralizers and five interchangeable cartridges for a variety of uses, will be featured. Other equipment includes ultraviolet equipped distilled water storage tanks which keep pure water sterile in storage; electrically heated, thermostatically controlled paraffin dispensers for pathology laboratories; laboratory sterilizers; and extremely fine water and air filters.

BAUSCH & LOMB OPTICAL CO., Rochester, N. Y. (*Booth 25*), will exhibit a working display of instruments for research and routine applications. Included are StereoZoom microscopes, U-V Photomicroscope utilizing the RCA ultrascope tube, and dynoptic microscopes with accessories. The new Spectronic 505 spectrophotometer will also be featured.

BECKMAN, Scientific and Process Instruments Div., Fullerton, Calif. (*Booths 186–187*), will feature a new pH meter, a new ultraviolet spectrophotometer, an infrared spectrophotometer, solution-metering pumps, mercury-vapor detectors, and other analytical instruments.

BECKMAN, Spinco Division, Palo Alto, Calif. (*Booths 101–102*). New accessories, shown here for the first time with the Model 120 amino acid analyzer, include preparative columns, stream divider, universal valve system and provisions for use with a scintillation counter. The new Model 170 refrigerated continuous flow centrifuge exhibits a total material temperature control system. Also displayed is the Model 160 blood/gas analyzer for in vivo microelectrode measurement of oxygen tension.

BELLCO GLASS INC., Vineland, N. J. (*Booth 19*), will feature the new DeLong culture flask, an Ehrlenmeyer-type flask with neck designed for the Morton stainless steel culture tube closure; the non-corrosive, borosilicate glass pipettes, with permanent amber stain graduations; and tissue-culture glassware. A new all-glass still, which produces 4 liters of double-distilled water per hour from tap, will be shown. They will welcome your special glassware requests.

BETHLEHEM APPARATUS COMPANY, INC., Hellertown, Pa. (*Booth 172*), will feature their glassblowing kit with manual for chemists, physicists, engineers. Kit includes tools of special design to minimize skill needed in glassblowing operations. Sharp flame hand torch—gas-oxygen, no tip change needed. Works Pyrex 3–51 mm small size quartz. They will also display their Lab-Lathe; gas-oxygen burners; bench burner; glassworking accessories. Mercury cleaning equipment; Mercury cleaning service—continuous vacuum triple distillation.

BIOPHYSICAL ELECTRONICS, INC., New Hope, Pa. (*Booth 53*). The continuous systolic Monitor and Visoton for measuring and recording blood pressure in humans and animals without the necessity of arterial puncture. New inexpensive pneumatic recorder attachment for the Monitor; an animal-activity cage; an electronic Varichron timer used in conditioning experiments, and other instruments for the physiologist and experimental psychologist will be demonstrated. All can be discussed with the engineer at the booth.

BLAKISTON DIVISION, McGRAW-HILL BOOK CO., New York City (*Booth 116*), will exhibit: Rodahl's *Bone as a Tissue*; Hoffman and Cranefield's *Electrophysiology of the Heart*; White, Handler, Smith and Stetten's *Principles of Biochemistry* (2nd ed.); Drill's *Pharmacology in Medicine* (2nd ed.); and the Armed Forces Institute of Pathology's *Manual of Histologic and Special Staining Techniques* (2nd ed.). Their newest publications as well as some of the latest editions of their already famous contributions to medical literature will also be shown.

S. BLICKMAN INC., Weehawken, N. J. (*Booths 89–90*), will show Blickman-built stainless steel microbiological safety enclosures, equipped with microbiological filter canisters and featuring seamless, crevice-free, round-corner construction for ease in cleaning and decontamination (designed to protect the laboratory technician as he works with hazardous substances); and accessory equipment, such as radioactive waste container and laboratory furniture. Literature on various types of enclosures to accomplish specific tasks will be available.

BRINKMAN INSTRUMENTS, INC., Great Neck, N. Y. (*Booths 124–125*), will display various outstanding new developments. These are: Elphor VaP continuous electrophoretic separator—up to 8 gm of albumin derivatives can be separated daily; Metrohm potentiograph—a completely automatic recording titrator with synchronized piston-burette, records not only the titration curve proper but also the first derivative; the latest type of blood pH equipment, the Metrohm compensator, Sanz electrode and Haake ultra-thermostat; the new Sartorius kilomat balance.

BRONWILL SCIENTIFIC, DIV. OF WILL CORP., Rochester, N. Y. (*Booth 121*), will exhibit their Warburg apparatus, constant temperature circulator, Godfrey molecular models, the new Braun infusion apparatus for long-term infusion of small liquid volumes, Juchheim magnetic thermometer, thermoregulators, and the new Gillings-Bronwill thin sectioning machine for preparing very thin sections of tooth, bone, stone and other hard materials.

BURGESS PUBLISHING COMPANY, Minneapolis, Minn. (*Booth 23*). Many books and manuals of interest will be on display. New books will include Umbreit's *Metabolic Maps*, vol. II; Potter's *DNA Model Kit*; Mertz's *Elementary Biochemistry*; Chase's *Principles of Radioisotope Methodology*; and Holck-Miya's *Laboratory Guide in Pharmacology*. Publishing information for prospective authors will be gladly given.

CAHN INSTRUMENT COMPANY, Paramount, Calif. (*Booth 5*), will exhibit a new recording balance, their RM auto-

matic electrobalance, the first recording balance fast enough to record muscle forces and similar physiological phenomena, and capable of operating in extreme environments, such as cryostats; and their M-10 electrobalances, for the rapid and accurate weighing of milligram quantities to microgram accuracy.

CALIFORNIA CORPORATION FOR BIOCHEMICAL RESEARCH, Los Angeles, Calif. (*Booth 74*), will distribute new literature, including a new *Aid-for-the-Biochemist*. Technical representatives will be on hand to discuss our new enzyme line and our new carbon-14 program, as well as other matters of interest.

CANAL INDUSTRIAL CORPORATION, Bethesda, Md. (*Booth 119*). For biochemists: indicating, ratioing, and quantitating recording ultraviolet flow analyzers for column chromatography, plus a recording Picaspectrophotometer. For histochemists and cytochemists: the new freeze-substitution refrigerator, Dry Air freeze dry, Cold Hand vacuum freeze dry, and cytophotometer. For biophysicists: an all-purpose ratio recorder (single and double channel models). For cytologists and hematologists: equipment for freeze-preserving viable tissues and for time-lapse photography.

CASE LABORATORIES, INC. Chicago, Ill. (*Booth 193*), will display materials and supplies for the bacteriological laboratory, consisting of culture media, dehydrated and prepared in tubes, plates, and bottles; the Anaero-Jar; sensitivity disks and other diagnostic reagents; the diphase blood culture bottle; and the urine culture set.

COCA-COLA COMPANY, Atlanta, Ga. (*special area*). Ice-cold Coca-Cola served through the courtesy and cooperation of the Coca-Cola Bottling Co. of Chicago, Inc., and the Coca-Cola Company.

COLEMAN INSTRUMENTS, INC., Maywood, Ill. (*Booth 97*), will display several new instruments, including a completely automatic nitrogen analyzer, economical line-operated pH meter and automatic burette filling device, in addition to a complete line of spectrophotometers, pH meters, photofluorometer and flame photometer.

WARREN E. COLLINS, INC., Boston, Mass. (*Booth 194*), will have the latest pulmonary function equipment on display. Shown for the first time will be the new Collins residual volume unit using a Gow-Mac catharometer. This unit is available in both the 9 and 13.5 liter respirometers. The MacNeill-Collins blood dialyzer and blood pump will also be shown. Our new catalog contains our complete pulmonary function line including such new items as treadmills, body plethysmographs, Krogh spirometers, small animal chambers, etc. Ask to see it.

CONSOLIDATED LABORATORIES, INC., Chicago Heights, Ill. (*Booth 190*). The newly accepted Astell roll tube technique for standard plate counts and other laboratory apparatus of novel design will be demonstrated—such as for electrophoresis, an automatic recording densitometer, Feinberg agar gel cutters, and newly introduced reagents for the laboratory.

CORNING GLASS WORKS, Corning, N. Y. (*Booth 96*).

COULTER ELECTRONICS, INC., Chicago, Ill. (*Booth 50*), will demonstrate their Counter research model with automatic graphing. Red and white blood cells, bacteria, tissue culture cells or any particle larger than 0.5 microns in diameter can now be counted and automatically graphed for size distribution. The questionable accuracy, time consumption and tedium of optical counts and sizing can now be eliminated.

CUSTOM ENGINEERING AND DEVELOPMENT CO., St. Louis, Mo. (*Booths 129–130*), will demonstrate their line of Nitralyzer nitrogen meters, introducing a complete instrumentation package for single-breath nitrogen wash-out determination; precision electronic servo-spirometers, including one for small animal oxygen uptake; a new high dynamics waterless spirometer with electrical volume and flow-data outputs; a newly designed versatile computer which combines with any nonlinear instrument to produce linear output.

DIFCO LABORATORIES, Detroit, Mich. (*Booth 24*). Newly developed and standardized microbiological specialties and laboratory reagents will be featured at their exhibit. Research and development and technical service representatives will be present to discuss your special requirements.

LESTER A. DINE CO., Woodside, N. Y. (*Booth 57*), will feature the new Eastman Kodak Startech camera, the compact and inexpensive camera set-up that enables the novice photographer to take excellent color slides of a subject 4–16 inches from the camera. In addition there are attachments for copying from a book or a chart, making slides from the large x-rays, plus many other new items that will be of interest to clinical photographers.

E. I. DU PONT DE NEMOURS & COMPANY, Wilmington, Del. (*Booth 169*). Response of humans to protein quality will be shown by charts illustrating recent original research on human subjects. These responses also will be correlated with complete malnutrition problems of the world in graphic manner with original references given. A simplified reproduction of the exhibit and any of the literature references used will be available on request.

EBERBACH CORPORATION, Ann Arbor, Mich. (*Booth 122*), announces a new variable speed–variable stroke reciprocating shaker, designed to meet today's exacting demands of the laboratory. Table model water bath shakers, providing precision shaker action under controlled temperature and atmosphere conditions, and the versatile Roto-Tilt shaker, with or without hotplate, are displayed. Newly designed accessories for the Waring Blendor and their stirring apparatus are exhibited.

E-C APPARATUS COMPANY, Swarthmore, Pa. (*Booth 155*), will exhibit the following apparatus for the analysis and fractionation of chemical and biological materials: countercurrent fractionator for quantitative separations in two-phase solvent systems; electroconvection apparatus for preparation of pure proteins; electrophoresis apparatus for either starch block, paper, or gel, with water-cooled pressure plates and new vertical gel electrophoresis apparatus.

ELECTRIC HOTPACK CO., INC., Philadelphia, Pa. (*Booth 34*), will feature equipment for testing and conditioning processes: stainless steel constant temperature bath—models designed to operate at one of two temperature ranges, 0–60°C, 30–125°C. For conditioning or testing under uniform liquid temperatures, control within 0.2°C, wide ranges of sizes. Stainless steel vacuum oven—features full-view door, slide-out heaters, silicone gasket; developed for rapid drying and heat testing within a 300°C range. Portable forced draft economy oven—temperature range is 35–280°C; an accurate, mechanical convected oven with features found only in more expensive models as standard equipment.

ELECTRONICS FOR MEDICINE, INC., White Plains, N. Y. (*Booth 22*). Multichannel cathode-ray systems for scalar and loop (X-Y) recording and monitoring. Multichannel tape recorders for physiological phenomena, and amplifiers for special purposes—integrators, multipliers, etc., will be shown.

EPSCO WORCESTER, Worcester, Mass. (*Booth 100*), invite you to visit their display of advanced amplifiers and direct recording instrumentation for physiology and biology. Highly accurate and stable amplifiers are available for specialized purposes, as well as units usable for a multitude of stringent labora-

tory applications. Reliable and well engineered solid state circuits have been perfected for the special problems of biophysics. Their staff will be available to help solve your problems.

FALCON PLASTICS COMPANY, DIV. OF BECTON, DICKINSON & CO., Rutherford, N. J. (*Booth 32*). Their motto, "First and Foremost," is a relentless taskmaster demanding an endless stream of new products to justify its use and position in the field of sterile disposable laboratory ware. This year, as in the years past, new items will be offered for your convenience and efficiency. The entire line will also be displayed, and they will be happy to welcome you.

FISHER SCIENTIFIC COMPANY, Pittsburgh, Pa. (*Booths 91–93*), will feature the new clinical gas partitioner for the direct automatic analysis of blood and respired air for oxygen, nitrogen and carbon dioxide. Also featured will be their Kewaunee-Horton germ-free system, zone refiner, Johns melting point apparatus, their new Duo-Spectranal, Coleman photofluorometer, and other instruments and apparatus of interest to the biological field.

J. MELVIN FREED, INC., Perkasie, Pa. (*Booth 115*), will exhibit JMF pre-cleaned microscope slides packed in the Stand-Rite microscope-slide box that keeps slides in vertical position. Slides are made from the domestic Lustra-white micro-glass. A variety of culture slides and Corning cover glass in a dispenser type box will also be shown.

GILFORD INSTRUMENT LABORATORIES, INC., Oberlin, Ohio (*Booth 143*), will exhibit a new series of instruments of interest to the biochemist. Continuous recordings of optical density changes in four simultaneous enzyme reactions can be made with two new units that can be directly attached to spectrophotometers such as the Beckman DU. Another new instrument features continuous recording of the ultraviolet optical density of the effluent from chromatographic columns. Their group of instruments for the physiologist, including cuvette densitometer for oximetry and dye-dilution studies, digital cardiotachometer, and computing spirometer, will also be demonstrated.

GILSON MEDICAL ELECTRONICS, Middleton, Wisc. (*Booths 13–15*), present 3 different models of ultraviolet absorption meters: UV-2801F for use with proteins, UV-254 for use with nucleotides, and UV-2651F for use with nucleotides with minimal formic-acid effect. Also the GME circular Warburgs, standard, refrigerated, and special models for photosynthesis; two fraction collector models; their rectilinear, ink-writing polygraphs in two sizes, the larger size incorporating 2 servos writing across the entire 12-inch chart, 4 pressure channels, electrocardiograph, and electroencephalograph; and their high voltage Electrophorator will be shown.

GRAF-APSCO COMPANY, Chicago, Ill. (*Booth 153*), America's leading microscope repair house, will give attention to any make or model, will discuss any microscope troubles and will also discuss the disposition of obsolete microscopes. Their new microscopes with exclusive features designed into the stand to keep this instrument in good working order indefinitely will also be shown.

GRASON-STADLER COMPANY, INC., West Concord, Mass. (*Booth 195*), manufacturers of equipment for the experimental control of behavior, invite you to visit their exhibit. There will be a wide selection of equipment for automatic programming and control of experimental conditions. Techniques for assessing the effects of drugs on behavior will be illustrated by a demonstration experiment. Competent technical personnel will answer questions about the application of automatic programming to various areas of biological research.

GRASS INSTRUMENT COMPANY, Quincy, Mass. (*Booths 78–80*), will exhibit equipment for research and teaching in the field of electrophysiology, such as a new line of physiological stimulators, the popular Model 5 polygraph, AC and DC preamplifiers, their famous camera, and many other items. Competent personnel will be on hand to help select the equipment best suited for your teaching or research requirements.

GRUNE & STRATTON, INC., New York City (*Booth 137*). Their representative will be on hand to show you some of their newest books in experimental medicine. Included will be Schaltenbrand & Bailey's *Introduction to Stereotaxis*, with an atlas of the human brain; Wuhrmann-Wunderly's *Human Blood Proteins*; Astwood's *Clinical Endocrinology, I*; Wortis' *Biological Psychiatry, II*; Herbert's *Megaloblastic Anemias*; Hoeprich and Ward's *Fluids of Parenteral Body Cavities*; and the 3-volume *Proceedings of the 7th Congress of the International Society of Hematology*.

WILLIAM J. HACKER & CO., INC., West Caldwell, N.J. (*Booth 113*), will exhibit Reichert research microscope Zetopan; laboratory microscope Biozet and universal camera microscope MeF; fluorescence apparatus Fluorex and Fluorlux (featuring the fluorescent antibody technique); stereo-microscopes MAK series; Sitte ultra microtome for electron microscopy; projection viewscopes; Reichert and Jung conventional microtomes, and Cailloux micro-manipulator.

HARVARD APPARATUS CO., INC., Dover, Mass. (*Booth 134*), a non-profit institution for the advancement of physiology, will exhibit a selection of their large line of research and teaching apparatus. Included in this selection will be both infusion and respiration pumps and stimulators. Of particular interest will be a new line of horizontal recording transducers.

HEINICKE INSTRUMENTS CO., Hollywood, Fla. (*Booth 7*). A working exhibit of laboratory glassware washers and cage washers, with the latest improvements in their world-famous washers, based on the patented combination jet-ultrasonic action, obsoleting any other approach and guaranteeing chemical cleanliness with the faultless removal of autoclaved proteins, tissue cultures, blood, distillates, tars and precipitates, will be shown.

INDUSTRIAL SYSTEMS COMPANY, Matawan, N.J. (*Booth 156*). Their automatic laboratory glassware washing machines were developed to provide a mechanical means of cleansing test tubes, flasks, petri dishes and other laboratory glassware. Model GW-16 is a small, highly efficient glassware washer that's ideal for the average size laboratory and for supplemental production in larger establishments. Automatic, fast, efficient, time and labor saving, simple installation to existing power, water, and drain connections, 24 × 30 in. floor space.

INSTITUTE OF PUBLIC INFORMATION, New York City (*Booth 154*). Congeners (fusel oil, aldehydes, acids, etc.) are substances found in alcoholic beverages that provide their taste, bouquet and color. In large amounts, however, congeners may produce toxic or irritating reactions. This exhibit presents the results of quantitative chemical analyses of congeners found in six leading types of distilled spirits along with correlated acute oral toxicity studies obtained on rats and irritation studies using the rabbit-eye technique. Literature will be available.

INSTRUMENTATION ASSOCIATES, New York City (*Booth 36*), will feature new biochemical equipment: the MSE Mullard ultrasonic disintegrator, homogenizer, vortex shaker, propipette, colorimeter, pH meters, and cardiopulmonary equipment which will include spirometers, pneumotachographs, rapid gas analyzers for CO, O_2, CO_2, He; using thermal conductivity and infrared gas analyzers and precision gas meters; also a complete range of medical transducers for pressure temperature sound and flow; and intracardiac microphone. The Bird respirator with positive and negative phase, automatic cycling and anesthesia will be demonstrated.

XUM

INTERNATIONAL BUSINESS MACHINES CORP., New York City (*Booth 1*). An example of how punched cards can be used for technical literature searching will be presented by them. Two machines, constituting a complete information retrieval system, will be demonstrated: their 101 statistical sorter and the 26 card punch with document writing feature. These will be used to illustrate techniques in document-card punching, mechanized-file searching, and output printing.

INTERNATIONAL EQUIPMENT COMPANY, Boston, Mass. (*Booths 66–67*), invite members and their associates to view their display, which will feature new centrifuges and accessories for both research and routine applications. Technical personnel in attendance will welcome the opportunity to provide detailed information on new improved controlled temperature centrifugation and the latest developments in continuous-flow techniques.

W. H. KESSEL & CO., Chicago, Ill. (*Booth 182*).

KIMBLE GLASS COMPANY, Toledo, Ohio (*Booth 72*), will display their expanding line of laboratory glassware having stopcocks with Teflon plugs, square volumetric flasks, and Kimax boiling flasks. Clinical apparatus will include Kimax pipettes, centrifuge tubes (standard and heavy duty), and culture and test tubes.

KONTES GLASS COMPANY, Vineland, N.J. (*Booths 10–11*). The Duall tissue grinder, which has a conically ground surface for preliminary grinding and a cylindrically ground surface for final uniform homogenization, will be demonstrated. Carrel, T-series and other types of culture flasks will be shown, in addition to a variety of tissue grinders and tissue-culture apparatus. Bantam-ware, small organic glass apparatus, will be displayed, together with representative items of full size apparatus.

DAVID KOPF INSTRUMENTS, Tujunga, Calif. (*Booth 192*). Highlighted are the new design of stereotaxic instruments and a complete selection of accessories. Constructed of stainless steel, the apparatus features a cutaway cross bar for direct light stimulation with swivel mount for animal rotation and fully universal carriers with hand actuated lever locks. Accessories include a zeroing device for setting electrodes, spinal investigation unit and adaptors for cats, monkeys, rabbits, rats, and mice.

LABLINE, INC., Chicago, Ill. (*Booth 114*), will show many new laboratory items, all of them in operation. Among them will be the new 1960 models of Imperial centrifuges, Imperial incubators, Hot Wall heated sterilizers, Hang-on-Wall incubator, water baths, slide warmers, low temperature storage cabinets for tissue vaccines, tissue float bath, electric sterilizers, Alumaloy clamps, stirrers, chromatography and electrophoresis apparatus, disposable animal cages, and other items for the research, clinical, biological, and industrial laboratories.

LABORATORY GLASS & INSTRUMENTS CORP., New York City (*Booth 73*), will feature the Evapo-Mix for simultaneous evaporation of fraction cuts; complete line of rotary evaporators; refrigerated and segmented fraction collectors; new system of freeze-drying equipment; Varigrad, a variable gradient device for chromatography; Rotodiffusor, a new apparatus for blood-gas determination on micro scale without the use of mercury; immuno and zone electrophoresis equipment and power supplies; automatic chloride titrator.

ARTHUR S. LA PINE AND COMPANY, Chicago, Ill. (*Booths 148–149*), will exhibit the Collectochrom chromatography preparative instrument, Leybold high vacuum pumps with gas ballast, the new model Tempunit for water baths, La Pine clamps, new design die-cast of aluminum, Cahn automatic electrobalance and recorder, freeze dryers, conedrive stirrer, and Coleman autofiller. Also exhibiting a Beckman GS pH meter modified for determination of CO_2 in blood.

LEA & FEBIGER, Philadelphia, Pa. (*Booth 60*). See: McGrath, *Neurological Examination of the Dog*; Whitlock, *Diagnosis of Veterinary Parasitisms*; Wohl and Goodhart, *Modern Nutrition in Health and Disease*; DiFiore, *An Atlas of Human Histology*; Wintrobe, *Clinical Hematology*; Faust and Russell-Craig and Faust's *Clinical Parasitology*; Gray's *Anatomy*; Smith and Jones, *Veterinary Pathology*; Quimby, Feitelberg and Silver, *Radioactive Isotopes in Clinical Practice*; Reddish, *Antiseptics, Disinfectants, Fungicides and Chemical and Physical Sterilization*; and other books of interest to biologists.

LEHIGH VALLEY ELECTRONICS, Medical Research Div., Allentown, Pa. (*Booth 132*), will display behavior analysis apparatus for basic research and screening investigations in the field of behavioral science. Automatic electronic programming and recording apparatus with interchangeable animal-test chambers produce a controllable environmental and experimental situation for animal-behavior control and analysis. EEG and stimulation accessories for electrophysiological research will include acute and chronic electrodes for brain implantation, intracranial cable-suspension devices and restraining chambers to complement your research apparatus.

E. LEITZ, INC., New York City (*Booth 65*), will exhibit new binocular inverted tissue culture microscope; new Panphot with Xenon lamp; Ortholux and Labolux fluorescence microscopes; micro-manipulator; new Stone automatic titrator; new polarizing microscopes; Fernandex Moran ultra-thin scanning microtome; the latest photomicrographic equipment, including Leica camera, microflash and Camera Lucidas and their new TV video instruction research microscope.

LINBRO CHEMICAL CO., New Haven, Conn. (*Booth 142*), will exhibit their 7X laboratory glassware cleaner and Disposo-trays. Disposo-trays contain a series of cups which replace test tubes used in laboratory titrations. Both products are accepted by virus laboratories everywhere, which have found that, after washing with a 7X solution, the pH of the glassware is neutral and inhibition and mutation of the organism do not occur. With 7X there are no false results because of residuals that affect the pH.

LINDE COMPANY, DIV. OF UNION CARBIDE CORP., New York City (*Booth 165*) will exhibit their liquid nitrogen refrigerators and small equipment for the transport and storage of liquid nitrogen and other liquefied gases. These refrigerators and containers can be used for the freezing and long-term preservation of biological materials in liquid nitrogen (−320°F) and, therefore, are an important laboratory tool in biological research. Technical information on liquid nitrogen as a means for preserving tissues, bone marrow, blood and other biologicals will be offered.

J. B. LIPPINCOTT COMPANY, Philadelphia, Pa. (*Booth 63*), presents for your approval a display of professional books and journals geared to the latest and most important trends in current medicine and surgery. These publications, written and edited by men active in clinical fields and teaching, are a continuation of more than 100 years of traditionally significant publishing.

LITTLE, BROWN & COMPANY, Boston, Mass. (Booth 145), invite you to visit their booth where books in all areas of medicine will be on display. Among the titles which will be of particular interest to society members are the famous *Ciba Foundation Symposia*, Pearse's *Histochemistry*, and the Henry Ford Hospital *Symposium on Mechanisms of Hypersensitivity*.

L K B INSTRUMENTS, INC., Rockville, Md. (*Booth 180*), will feature preparative and paper electrophoresis; preparative and analytical chromatography; fraction collector; ultraviolet analyzer and recorder; precision micropump; density gradient machine; conductolyzer; conductivity bridge and high resolution buffer.

LOURDES INSTRUMENT CORPORATION, New York City (*Booths 111–112*), will display a variety of superspeed centrifuges and homogenizers, including VA-2 ultra superspeed vacuum refrigerated centrifuge, the first centrifuge ever to offer forces of 60,000 *g* with 1,500 ml capacity, and forces to 33,000 *g* with 3,300 ml capacity. Rotors will be displayed, including the three new continuous-flow rotors with removable polyethylene liners; the 3RA rotor, the only rotor ever to spin a capacity of 3,300 ml (6 × 550) at forces to 33,000 *g*. Also, a variety of new accessories, including metal support and sealing caps for standard polyethylene bottles.

THE MACMILLAN COMPANY, New York City (*Booth 158*), will display a representative selection from their extensive list of scientific publications. Among the more recent books will be Quimby, *Safe Handling of Radioactive Isotopes in Medical Practice;* Romanoff, *Avian Embryo*, and Brazier, *Electrical Activity of the Nervous System* (2nd ed.).

JOSIAH MACY, JR. FOUNDATION, New York City (*Booth 47*), has on display the Transactions of current and past Conference series. You are invited to visit their booth and inspect the most recently published transactions of the Conferences on *The Central Nervous System and Behavior*, *Cold Injury*, *Gestation*, *Glaucoma*, *Neuropharmacology*, *Physiology of Prematurity*, and *Polysaccharides in Biology*, as well as earlier volumes in these series.

MEINECKE AND COMPANY, INC., New York City (*Booth 59*). On display will be Haemo-Sol, the truly outstanding chemical preparation specifically designed for cleaning scientific apparatus such as laboratory glassware, syringes, etc. Haemo-Sol is entirely free rinsing, leaving no film or residue to interfere with subsequent titrations and preventing etched conditions on glassware. Laboratory approved for tissue-culture work. Haemo-Sol is also the ideal preparation for use in connection with a flame photometer. Haemo-Sol NS, the low-sudsing formula for mechanical washers, will be shown.

METALWASH MACHINERY CORPORATION, Elizabeth, N.J. (*Booths 146–147*), will show their Model OT-20 (first exhibited in early 1959) together with a new animal-cage washer and a new animal-bottle washer.

METTLER INSTRUMENT CORPORATION, Hightstown, N. J. (*Booth 30*), manufactures a full line of semi-automatic direct-reading balances. Among some 65 models to choose from are micro, semi-micro, macro, multi-purpose and precision balances plus a number of special purpose balances. A demonstration will be given by their representatives, who will explain the entire line.

MICROBIOLOGICAL ASSOCIATES, INC., Washington, D. C. (*Booth 3*), will feature fluorescein-conjugated antiserum globulins for direct and indirect staining methods. Thirty different cell strains of original and serially cultivated tissue cultures available for microscopic examination. An array of recently developed viral diagnostic reagents—both complement-fixation antigens and typing antisera—and for distribution, new catalogs and technical literature describing new tissue culture products and viral diagnostic reagents, fluorescein bibliography and brochure, etc.

MICROCHEMICAL SPECIALTIES CO., Berkeley, Calif. (*Booth 168*), will feature their analytical apparatus and scientific instruments including Spectrolator (refrigerated, semi-automatic, vertical-curtain continuous-flow electrophoresis for large scale preparative fractionations), multi-cell rapid electrophoresis, special chromatography apparatus, fraction collectors, automatic buret-pipettor, complete line of micro and ultramicro glassware and pipets, quartz balances, hydraulic micromanipulator, hydraulic homogenizers, clinical micro technique apparatus (Teknikits), 10-channel automatic rate recording colorimeter, electronic physiological-response recorder.

MICRO-METRIC INSTRUMENT COMPANY, Cleveland, Ohio (*Booth 144*). Microanalytical instrumentation designed to speed data collection and reduce the time consumed in routine laboratory duties. Amongst the various items exhibited will be their micro-gasometer, syringe microburet, Warburg calibrator, micro screw syringes, magnetic stirrer, micro test tube stirrer, Cartesian diver respirometer and diver filler, pipette washer and dryer, automatic pickup tweezers, pressure ultra-filtration unit and animal drinking fountains.

MILLIPORE FILTER CORPORATION, Bedford, Mass. (*Booth 191*). Their complete line of filters and associated items of analytical and process volume filtration apparatus will be demonstrated for both laboratory and field application. Representatives will discuss procedures for environmental and clinical microbiology, cytology, sterilization of plasma and other biological materials by filtration, aerosol analysis, tissue culture and implantation techniques and many other applications of specific interest.

C. V. MOSBY COMPANY, St. Louis, Mo. (*Booths 98–99*), have on display, for your leisurely examination, their latest text and reference books in the fields of physiology, pathology, biochemistry, nutrition, hygiene, etc. They invite and welcome discussion concerning your book requirements for teaching and reference.

NALGE CO., INC., Rochester, N. Y. (*Booth 164*), will exhibit a complete line of laboratory apparatus for use in medical, educational, and industrial laboratories. Nalgene lab ware is fabricated from conventional or high-pressure polyethylene, linear or low-pressure polyethylene and polypropylene. A working model will demonstrate the Nalgene automatic pipet rinser in use. Other products to be shown include beakers, bottles, carboys, centrifuge and test tubes, cylinders, funnels, etc.

NATIONAL ANILINE DIVISION OF ALLIED CHEMICAL CORP., New York City (*Booth 41*). The Biological Stains Department will present a new display which features applications of the widely used biological stains sold by them. The display also will call attention to the other types of products offered which include pH indicators, oxidation-reduction indicators, diazo salts, and staining solutions.

NATIONAL INSTRUMENT LABORATORIES, INC., Washington, D. C. (*Booth 46*), will show new instruments of their manufacture, as well as outstanding apparatus for which they are the exclusive national or regional distributor: their flame photometer, the Agafor immuno and micro electrophoresis apparatus, their drop-counter, and the respiratory gas analyzer. The Optica CF-4 manual single-beam and double-beam recording spectrophotometers, the Slee cryostat (Pearse refrigerated microtome), and radiometer pH equipment will also be shown.

NEW BRUNSWICK SCIENTIFIC CO., INC., New Brunswick, N. J. (*Booths 48–49*).

NUCLEAR-CHICAGO CORPORATION, Des Plaines, Ill. (*Booths 159–160*). New low-level automatic counting system for routine radio-assay utilizing new flow counter and anti-coincidence techniques. A complete line of radiation detection and measurement equipment, flow counters, ionization chambers, scaling instruments, ratemeters, spectrometers and accessories will be shown. Complete Dyncacon electrometer system for C14 and H3 and the new Actigraph for scanning radio-labeled strip chromatograms. New radio-chemical listings and detailed carbon-14 specifications.

NUCLEAR MEASUREMENTS CORPORATION, Indianapolis, Ind. (*Booth 157*), will feature a 4 pi windowless proportional counter, giving direct readout with or without coincidence circuit; a new single-channel pulse-height analyzer featuring direct number readout, and a new completely shielded proportional counter.

OFFNER ELECTRONICS INC., Schiller Park, Ill. (*Booth 4*). Their Type R transitor dynograph permits direct recording of almost any phenomenon of interest to the biologist. Stable d.c. sensitivity to one microvolt; 1.5 millisecond response; direct recording from strain gages, microelectrodes, glass electrodes, cardiotachometer, muscle integrator, etc., all by changing input couplers. The Type T transitor EEG provides many of the same features in a highly portable, 8-channel unit. Other amplifiers and recorders for the biologist will also be exhibited.

ORGANON INC., Orange, N. J. (*Booth 64*). The pharmacology of allylestrenol, a new progestational steroid. Allylestrenol is Δ4-17α-allyl, 17β-hydroxy-oestrene, a 3-desoxo-19-nortestosterone compound. The pharmacological data will be presented. In the Clauberg and McGinty tests, this compound was shown to be a potent progestational agent. The compound was active in a pregnancy maintaining test in rats. In these animals it had no androgenic or uterotropic properties, only slight gonad inhibition in males, and none in females, and no corticoid or anabolic action.

OXFORD UNIVERSITY PRESS, INC., New York City (*Booth 37*), features a display of various new publications. Among them are: Smith, Beamer, *et al.*, *Principles of Human Pathology;* Beecher, *Measurements of Subjective Responses;* Christensen, *Diagnostic Biochemistry;* DuBois and Geiling, *Textbook of Toxicology;* Behrman and Gosling, *Fundamentals of Gynecology;* Titchener and Levine, *Surgery as a Human Experience;* Simpson, *Major Endocrine Disorders*, *Lectures on the Scientific Basis of Medicine*, vol. 7; Hinsie and Campbell, *Psychiatric Dictionary* (3rd ed.); Thurber, *Evaluation of Industrial Disability* (2nd ed.).

PABST LABORATORIES, Milwaukee, Wis. (*Booth 58*), will have literature describing all of their research biochemicals, including ribonucleosides and 5′-mono-, di- and triphosphates, coenzymes and coenzyme analogs, ribonucleic acid and hydrolysis products. The exhibit will feature the role of nucleotides as coenzymes. Representatives will be available to discuss the products and the services offered by their laboratories to the biochemical profession.

PACKARD INSTRUMENT COMPANY, INC., La Grange, Ill. (*Booth 5A*). Tri-Carb liquid scintillation spectrometers will be counting, printing and tape-punching data on low energy beta-emitting samples. Adaptation of Tri-Carb spectrometer electronics to measure radioactivity in liquid or gas streams and quantitative gas chromatography fraction collector systems for trapping and counting radioactive components; transistorized nuclear measuring equipment; complete Auto-Gamma spectrometer system; bidimensional radiochromatogram scanner; CO_2 analyzer with punch card output for use in metabolic research; recording ratemeters; and manual models of scalers and gamma spectrometers, will be shown.

PAXTON PROCESSING CO., INC., Paxton, Ill. (*Booth 16*), and LAUREL FARMS, INC., will exhibit San-I-Cel laboratory animal bedding in regular and deodor grades, packed in standard 50-lb., four-ply multiwall paper bags or in DuoPack, the same container with an inner polyethylene-liner bag. Absorption and odor-controlling characteristics of San-I-Cel will be demonstrated.

PENTEX INCORPORATED, Kankakee, Ill. (*Booth 52*), cordially invite you to their booth. Blood proteins and enzyme preparations will be featured. They will also stress their special processing service, and invite all inquiries.

PERGAMON PRESS INC., New York City (*Booth 166*), a leading international scientific publishing house with offices in London, Oxford, New York, Los Angeles, Paris and Frankfurt, deals with the publication and sale of hundreds of new books each year and more than 50 international journals.

PHIPPS & BIRD, INC., Richmond, Va. (*Booth 140*), will display apparatus of interest to both the teacher and investigator in physiology, pharmacology, and related fields, and will include standard equipment such as kymographs, stimulators, and other accessory equipment to be used with the kymographs. In addition, syringe drivers, respiratory gas-collecting bags, tubes, breathing valves, and gas-analysis equipment will be exhibited.

PICKER X-RAY CORPORATION, White Plains, N.Y. (*Booths 20–21*). Their Nuclear Division will exhibit complete systems for the automatic assay of liquid samples in a well type scintillation detector and solid samples by means of Geiger, proportional or scintillation detectors, as well as a system for automatically scanning chromatogram strips. A complete line of accessories and associated equipment will also be on display.

PORTER-MATHEWS COMPANY, INC., Philadelphia, Pa. (*Booth 29*). Custombuilt research laboratory animal cages. Many years of experience in building special cages in small or large quantities. Stainless steel cages a specialty. Send them your specifications or request prices on their standard cages. Cages, racks, made from steel, aluminum or stainless steel.

PRECISION SCIENTIFIC CO., Chicago, Ill. (*Booths 151–152*), will exhibit a Dubnoff metabolic shaking incubator, line of centricone centrifuges, Inograph for electrophoresis work, Thelco and Freas incubators, midget water still, new heated vacuum desiccator, a new line of Thermo-Plate hot-plates and the Model 25 vacuum pump, newest addition to the Precision pump line.

PROFESSIONAL TAPE COMPANY, INC., Riverside, Ill. (*Booth 12*), will display pressure-sensitive time tape and time labels: Time Hi-Temp tape, a new pressure-sensitive tape developed for $-70°$ to $550°$ F: Time autoclave labels with TSI (Time Sterile Indicator). The word 'sterile' appears only after a complete standard sterilization cycle. A rapid acting dispensing carton to release Time microscopic slide labels conforming to the requirements of law.

PUBLISHERS' AUTHORIZED BINDERY SERVICE, LTD., Chicago, Ill. (*Booth 181*). Of prime importance to the scientist is the availability of the latest printed communications in the field of specialization. The preservation of these valuable papers is imperative for the life of their usefulness. The method must be such that this information be instantly accessible for reference and research when the occasion arises.

QUARACELL PRODUCTS, INC., New York City (*Booth 150*), will show high precision quartz cells which are extensively used in all types of commercial spectrophotometers. These cells are matched in sets of two, four, six, etc. and are fused (not cemented), guaranteed to meet the highest precision in workmanship. Within the scope of the technical possibilities they are able to produce every kind of cell on the basis of your instructions and drawings.

RALSTON PURINA COMPANY, St. Louis, Mo. (*Booth 38*). Investigators and managers of experimental animal colonies will find a well-informed staff at the booth. They are the largest supplier of diets for research colonies with special rations for mice, rats, dogs, monkeys, guinea pigs and chickens. Their sales and research staff will have samples and literature on the special Chows and will also discuss special animal-health products for disease control in small animal colonies.

RAYTHEON COMPANY, Manchester, N. H. (*Booth 126*).

RESEARCH SPECIALTIES CO., Richmond, Calif. (*Booths 8–9*) manufactures chromatography equipment and other special-

ized laboratory apparatus for biochemical research. Will demonstrate *1*) unique modular systems for gas chromatography with thermal conductivity and ionization detection; *2*) completely automatic chemical analysis system, with sample handling mechanisms, including *3*) automatic tube centrifuge which loads, spins and unloads; *4*) automatic fraction collector with expandable control systems; *5*) temperature controlled water bath shaker, for flasks and test tubes.

SANBORN COMPANY, Waltham, Mass. (*Booths 75–76*), will display a wide selection of instruments for biophysical research—some in simulated operation—to aid understanding of function and operating features. Of interest to clinicians and research workers, the equipment includes recording systems (single- and multi-channel, direct-writing, photographic and tape), monitoring oscilloscopes, transducers (pressures, temperature, etc.) and new preamplifiers, which permit wide range of physiologic applications. Visitors are invited to see these latest models and to discuss technical problems with their representatives.

SANDOZ PHARMACEUTICALS, Hanover, N. J. (*Booths 188–189*). It is well known that the properties of ergot alkaloids are fundamentally alerted by hydrogenation. In recent years, the effects of other changes on the lysergic-acid moiety have been studied. By methylation of the indole nitrogen, a new class of derivatives has been obtained. Among such substances, the characteristics of which will be summarized, UML 491 was found a potent antagonist of serotonin.

W. B. SAUNDERS COMPANY, Philadelphia, Pa. (*Booths 135–136*). You are cordially invited to visit the exhibit and examine their latest publications in the biological sciences.

SCHWARZ BIORESEARCH, INC., Mount Vernon, N. Y. (*Booth 183*). Members of the staff will answer questions about the 200 products made by their company, the world's oldest and largest manufacturer of nucleic-acid compounds and yeast derivatives. Featured in the exhibit are some of the latest key research tools of biochemical and medical importance, including tritiated thymidine, tritiated cytidine, tritiated adenosine, tritiated 2-deoxy-D-ribose, C^{14},S^{35},P^{32} and N^{15}intermediates, amino acids, and other research chemicals.

SCHWARZER COMPANY, Watertown, Mass. (*Booth 162*) will present and demonstrate some of the Schwarzer Cardioscript models with accessories and transducers. The recorders are 3-, 4-, 8-, 12-, and 16-channel multipurpose direct-writing instruments for recording of: phonocardiography (up to 3000 cps in 6 selective octave-filters), EKG, EEG, pulse tracings, pressures, oximetry, dye-dilution measurements, ballisto-, and vector-cardiography; blood-flow estimations, temperatures, CO_2 measurements, respiration studies, etc.

SCIENTIFIC GLASS APPARATUS CO., INC., Bloomfield, N. J. (*Booth 175*).

SCIENTIFIC INDUSTRIES, INC., Springfield, Mass. (*Booths 117–118*), will show an expanded line of special laboratory equipment. A new versatile laboratory light will be shown in use with the Natelson microgasometer, and the use of special anti-foam reagents will be explained. The improved vortex mixer and Natelson pH meter for blood pH will be demonstrated. Three sizes of their syringe attachment will be there for you to try; also a new variable speed model of the multipurpose rotator, also laboratory timers and their ultra-buret.

SCIENTIFIC PRODUCTS, Evanston, Ill. (*Booths 138–139*) display will emphasize new and recent developments in laboratory instrumentation. Included will be the Spinco ultramicro chemistry system, the Clot-Timer, which automates prothrombin time determinations, the Auto-Diluter, with which one can automatically draw predetermined volumes of sample and dilute and dispense them simultaneously, the Super-Histo-Freeze for continuous frozen sectioning, and the Cineray which takes motion pictures directly from a fluoroscope screen. Many other products of major interest will be displayed.

SIGMA CHEMICAL CO., St. Louis, Mo. (*Booth 131*), manufacturers of research chemicals, are using this means of personally meeting individuals interested in biochemical research and clinical laboratory procedures. Personnel will be available to discuss any problems you might have with their preparations or the preparation of potentially interesting new compounds.

IVAN SORVALL, INC., Norwalk, Conn. (*Booths 61–62*). Automation is the key-word at their booth where they will display their Servall centrifuges and instruments. In operation will be the newly-designed Szent-Gyorgi & Blum continuous flow system, the popular RC-2 automatic superspeed refrigerated centrifuge, the SS-3 and -4 automatic and enclosed superspeed centrifuges, the Porter-Blum microtome, the Omni-Mixer with micro-attachment, pipettes, fraction collectors, electrophoresis and chromatography instruments.

E. R. SQUIBB & SONS, New York City (*Booth 133*), have long been leaders in development of new therapeutic agents for prevention and treatment of disease. The results of their diligent research are available to the medical profession in new products or improvements in products already marketed. They will be pleased to present up-to-date information on these advances for your consideration.

A. E. STALEY MANUFACTURING CO., Decatur, Ill. (*Booth 44*). The complete line of Rockland Laboratory Animal Stock Diets includes Rockland Rat Diet (complete), Rockland Rat Diet (D-free), Rockland Rabbit Ration, Rockland Guinea Pig Diet, Rockland Mouse Diet, Rockland Monkey Diet (all in pellet form). Permanent formulation, high quality available protein, no antibiotic active ingredients, free of diethylstilbestrol contamination, uniformity. These are assured in Rockland Diets and are manufactured and distributed exclusively by them.

C. H. STOELTING COMPANY, Chicago, Ill. (*Booth 120*), will feature: stereotaxic instruments; multi-channel recorders; high frequency oscillograph; servo-graphic recorders; Reichert microscopes; Foringer operant equipment; Lewa pumps; miscellaneous items.

TECHNICON CONTROLS, INC., Chauncey, N. Y. (*Booths 83–85*). The Auto-Analyzer, a system for automatic biochemical analysis, performs such determinations as glucose, urea, sodium, potassium, creatinine, cholesterol, etc. It is also a valuable tool for the physiologist, biochemist, pharmacologist, etc., in research work; for example, in vivo experiments are performed on a donor by continuously monitoring levels of the constituents of his blood. Also displayed are the Autotechnicon fraction collector, and Lab-Aid slide filing cabinets.

ARTHUR H. THOMAS COMPANY, Philadelphia, Pa. (*Booths 81–82*), will exhibit Turner fluorometer, ultra-violet viewing apparatus, Spinco Sanz micro-chemical system, Tempunit constant temperature bath, physiological items, Mettler balances, animal cages, Seligson automatic pipets with Teflon stopcocks, disposable laboratory ware, their assortment of plastic ware, pH meters, animal anesthesia chamber, dialyzing apparatus, flash evaporators and chromatography apparatus.

TORSION BALANCE COMPANY, Clifton, N. J. (*Booth 170*), will feature their new dial reading balances. This new line of balances uses the calibrated dial rather than graduated beam with slide weight, and this feature with the oil damping cuts weighing time approximately 60%. Also featured will be their electric mortar grinder and their inexpensive, disposable flexible glove cabinet (dry box).

TRACERLAB INC., Waltham, Mass. (*Booths 39–40*), will feature a wide variety of instruments specifically designed for biological-research laboratories employing radioisotopes. A complete line of Tracer-Matic automatic sample-changing systems will be on display. Included among these will be an automatic well-type sample changer, a low cost automatic liquid scintillation counter with complete data print-out, and a stepwise chromatogram scanner.

TRI-R INSTRUMENTS, Jamaica, N. Y. (*Booth 42*), invite you to discuss your laboratory temperature measurement problems. On display will be their thermistor-type electronic thermometer with various ranges, probes and accessories. Teflon tissue homogenizers with pestles and tubes in various sizes plus complete apparatus will be shown as well as their compact magnetic stirrer and egg punch for opening embryonated eggs.

VANGUARD INSTRUMENT CO., La Grange, Ill. (*Booth 167*), will exhibit their Model 800 Autoscanner. Designed for chromatogram scanning of tritium and other beta-emitting isotopes, the Autoscanner is completely transistorized, fully automatic, and features a wide range of scanning speeds and rate-meter time constants. Also on display is the new Model 1000 automatic fraction collector—a completely new concept in volumetric control for column chromatography.

VIRTIS COMPANY, INC., Gardiner, N. Y. (*Booth 176*), presents eight different models of the new UniTrap mechanically refrigerated freeze-drying system. Samples are automatically freeze-dried on manifolds or on electrically heated trays. Their dry ice cooled freeze-dryers can easily be converted to automatic refrigeration with the UniTrap. Other instruments for the biological research laboratory include Hi-Speed tissue homogenizers, Ultrabac filters, Extracto-matics and pipette washing and drying equipment.

VOLK RADIOCHEMICAL COMPANY, Chicago, Ill. (*Booth 45*). Specialists in providing isotopically labeled compounds for research and clinical use, their exhibit will include samples of the various available forms and packaging of the organization's carbon-14, deuterium, tritium, cobalt-60, iodine-131, phosphorus-32, and sulfur-35 labeled products. Their radiochemists will be in attendance to discuss specific needs for products to meet varying research requirements.

WARNER-CHILCOTT, General Diagnostics Division, Morris Plains, N. J. (*Booth 54*), is proud to announce, Urograph™, a chromatography procedure for the determination of urea nitrogen. Urograph™ is the newest addition to a line of specialized reagents made available especially for the fields of coagulation, enzyme chemistry and routine blood chemistry, as well as specialized procedures such as kidney-function tests, steroid hydrolysis and routine blood-volume determinations.

WATERS CORPORATION, Rochester, Minn. (*Booth 77*). Almost all new improved models this year. A linear, less expensive densitometer and cardiotachometer; a redesigned ear oximeter; a simplified recording oximeter; a nitrogen-gas analyzer with remote sampling head; also recording thermistor with unique probes.

WELWYN INTERNATIONAL INC., Cleveland, Ohio (*Booth 177*). Radiometer pH instruments will be demonstrated. The new Astrup micro equipment for determining pH, pCO_2, standard bicarbonate, and acid-base balance of blood using a sample volume of 0.1 ml, will be featured. Other equipment will include the automatic titrator and the pH Stat-titrigraph, and their latest transistorized pH meter.

JOHN WILEY & SONS, INC., New York City (*Booth 51*), cordially invite you to their booth where titles in fields of particular interest to you are displayed. Your attention is called to several of our latest (and forthcoming) publications: a 3-volume work of Greenstein and Winitz, slated for September, *Chemistry of the Amino Acids*; Fuller and Thompson's *Behavior Genetics*; *The Nutritional Evaluation of Food Processing* by Harris and von Loesecke; and Mallette's *Biochemistry of Plants and Animals*, due to appear in June.

WILKENS-ANDERSON COMPANY, Chicago, Ill. (*Booth 173*), will exhibit a new fused silica prism spectrophotometer for ultraviolet and visible range, 186–1000 mμ; new inexpensive line operated pH meter; Waco Lo-Temp refrigerated constant temperature bath, for operation to 10°C with 0.01° control; Waco Agitherm, combination hot plate magnetic stirrer; micro-titrator for use with standard laboratory pH meter. General product line: manufacturer and distributor of scientific laboratory apparatus, instruments and reagent chemicals.

WILL CORPORATION, Rochester, N. Y. (*Booth 6*), will feature the Spinco ultramicro analysis system, a shaking water bath, plastic animal cages and restraining cage, a Mettler precision balance with animal pan, a precision piston burette, Will-Bioloid microscope slides, embedding paraffin and mounting medium, polyethylene draining racks and clinical glassware, including automatic filling pipettes, stopcocks with Teflon plugs and square flasks.

WILLIAMS & WILKINS CO., Baltimore, Md. (*Booth 141*). New and recent publications are Dawkins & Rees: *A Biochemical Approach to Pathology*; Cannon *et al.*: *Proceedings of a Symposium on Immunization in Childhood*; Gray: *Clinical Chemical Pathology*; McDonald: *Physiological Monographs Series* (No. 7); Gurr: *Encyclopedia of Microscopic Stains*; Field, Magoun and Hall: *Handbook of Physiology*, vols. I and II; Conn, Darrow and Emmel: *Staining Procedures*; Clark: *Oxidation-Reduction Potentials of Organic Systems*; Kelsall and Crabb: *Lymphocytes and Mast Cells*; Skerman: *Guide to Identification of the Genera of Bacteria*; Riley: *Mast Cells*; Waksman: *Actinomycetes*, vol. I; Lansing: *The Arterial Wall*.

WILMOT CASTLE COMPANY, Rochester, N. Y. (*Booths 178–179*). Orthomatic laboratory autoclave: this new autoclave features a completely new push-button control. Chamber temperature is infinitely variable from 100° to 132°C. Special drying cycle for glassware is new. Sterox-O-Matic laboratory autoclave: continued high interest from research laboratories and pilot plants has resulted in more flexible equipment and improved techniques. Steril-Aqua: 5 gallons per hour of high-purity water from boiler steam. Compact and efficient, this unit can be considered for individual laboratory installation.

WORTHINGTON BIOCHEMICAL CORPORATION, Freehold, N. J. (*Booth 43*), will have literature available on new products, and technical personnel will be on hand to meet visitors and discuss problems pertaining to purified enzymes and their application.

R. G. WRIGHT COMPANY, INC., Buffalo, N. Y. (*Booths 184–185*), will display complete animal-cage processing systems including cage washers, cage rack washers, feeder-bottle washers and feeder-bottle fillers. A completely automated feeder-bottle system which automatically washes, fills, and caps feeder bottles at a speed of 1,200 bottles per hour. Vacuum sawdust disposal systems, automatic sawdust dispensers, laboratory glassware washers, special pipette washers, large capacity glassware dryers, automatic conveying systems.

YELLOW SPRINGS INSTRUMENT CO., Yellow Springs, Ohio (*Booth 55*), will exhibit four classes of instrumentation: laboratory instruments in the field of thermistor-based temperature measurement and control; blood gas-analysis equipment based on the Clark electrode; psychophysiological equipment for detection of GSR, heart-beat rate, respiratory excursion; and new recording instruments.

CARL ZEISS, INC., New York City, N. Y. (*Booths 70–71*), will display their instruments made in West Germany: camera microscope Ultraphot II (automatic exposure and setting device); photo-

microscope (built-in 35-mm film carrier and automatic exposure setting device); research microscope WL; laboratory microscopes GFL and KF; inverted microscope; fluorescence microscope; spectrophotometer PMQ II (accessories for chromatogram attachment, flame equipment, and fluorescence, reflectance, and microcell attachments); Abbe refractionometer; dipping refractionmeter; hand spectroscope; diffusion interferometer; polarimeter .01°; and particle-size analyzer.

MEMBER AND INSTITUTIONAL EXHIBITS

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE, Washington, D. C. (*Booth D*). Objectives—Promotion of journal, *Science*, and securing new members—both on a 'low pressure' basis!

ANIMAL CARE PANEL, Lemont, Ill. (*Booth L*). The exhibit will show the history of the Animal Care Panel and its membership. It will highlight the educational program and the dissemination of information about laboratory animal care practices. Literature will be available. Continuous films will be shown.

BIOLOGICAL ABSTRACTS, University of Pennsylvania, Philadelphia (*Booth A*). A cooperative, non-profit enterprise published by biologists for biologists. The exhibit will feature a more complete and detailed coverage of the biological literature. Many improvements have been initiated, including expansion and reorganization of the sections in General Biology and the Basic Medical Sciences to enable our users to locate needed information with greater facility. Representatives will be on hand to welcome visitors, answer questions, and solicit volunteer collaborators.

BIOLOGICAL SCIENCES CURRICULUM STUDY, Univ. of Colorado, Boulder (*Booth K*). The exhibit illustrates all organizational and operational features of the Biological Sciences Curriculum Study. Brochures and news letters describing the project in greater detail will be available.

FEDERATION OF AMERICAN SOCIETIES FOR EXPERIMENTAL BIOLOGY, Washington, D. C., and ANNUAL REVIEWS, INC., Palo Alto, Calif. (*Lounge*). Journals and books will be displayed. Staff members will be on hand to answer questions and to take orders and subscriptions.

ELECTRONMICROSCOPY, FLUORESCENCE MICROSCOPY, MICRODISSECTION AND EXPERIMENTAL NUTRITION. W. S. Hartroft, J. W. Grisham,* E. A. Porta,* P. E. Lacy, R. M. O'Neal, J. M. Kissane and P. M. Hartroft. *Dept. of Pathology, Washington Univ. School of Medicine, St. Louis, Mo.* (*Booth E*). Current research from the department will be presented, including: electron microscopy of experimental hepatic injury; electron microscopy, fluorescence microscopy and hormonal assay of islet adenomas in man; electron microscopy of salivary gland virus; serum lipids in experimental dietary myocardial infarction; microdissection and fluorescent antibody studies of renal juxtaglomerular cells and an outline of the departmental training program.

MEDICINE ADVANCES WITH SAFE NEW DRUGS. Irvin Kerlan,* John W. Nesbitt,* and Paul L. Day. *Bureau of Medicine, Food & Drug Admin., Washington, D. C.* (*Booth C*). The exhibit is designed to acquaint medical scientists with the health protective activities of the Food and Drug Administration as they relate to the development and introduction of new drugs.

MUSCULAR DYSTROPHY ASSOCIATIONS OF AMERICA, INC., *New York City* (*Booth B*). The exhibit shows the manifestations of muscular dystrophy by means of figure drawings with accompanying text, as well as the known treatment for patients with MD. The areas of research sponsored by Muscular Dystrophy Associations of America, Inc. are presented along with the Institute for Muscle Disease, a major center for research into muscular dystrophy and related neuromuscular diseases. The concept that muscular dystrophy occurs in many species of animals is also presented.

NATIONAL ACADEMY OF SCIENCES, *Washington, D. C.* (*Booth J*).

NATIONAL INSTITUTES OF HEALTH, *Bethesda, Md.* (*Booth F*). The exhibit will present graphically NIH programs for the conduct and support of research, research training and research facilities construction. Staff members to answer questions and provide consultation and free literature will be available at the booth. L. E. Martin, Asst. Chief of the Office of Research Information, is in charge of the exhibit.

NATIONAL SCIENCE FOUNDATION, *Washington, D. C.* (*Booth G*). This exhibit of the National Science Foundation, an independent agency of the Federal Government, highlights those Foundation programs of particular interest to members of the FASEB. These programs are concerned for the most part with the support of basic research, training, and education in the sciences, and the exchange of scientific information.

NATIONAL SCIENCE FOUNDATION, OFFICE OF SCIENCE INFORMATION SERVICE, *Washington, D. C.* (*Booth H*). The exhibit describes the world's output of scientific literature—in terms of publications in foreign languages which only a small portion of American scientists can read. The exhibit also explains what is being done about the problems of language barriers. A selection of translated journals in the biological sciences will also be displayed for examination by the viewers. Two handout booklets will also be included.

CELLULAR PHYSIOLOGY OF AGING: VARIOUS EXPRESSIONS OF A BIOLOGICAL PROCESS. Bernard L. Strehler, *Gerontology Branch, Natl. Heart Inst., and Baltimore City Hosps., Baltimore, Md.* (*Booth I*). This exhibit presents the background, present status and current research on the so-called 'age pigments' which accumulate in human brain, heart and other non-dividing cells.

FIFTH INTERNATIONAL CONGRESS ON NUTRITION

WASHINGTON, D. C.

SEPTEMBER 1–7, 1960

Eminent nutrition scientists from all over the world will participate in the Congress. An all-day symposium on "World Food Needs and Food Resources" will be the main feature of the scientific program. The remainder of the program on major problems of nutrition will consist of seven half-day panel discussions by invited participants, and special sessions of ten-minute papers reporting unpublished original research.

Industrial and institutional exhibits and visits to laboratories and other places of interest will be arranged.

Dr. C. Glen King, Executive Director, The Nutrition Foundation, New York City, is President of the Congress; Dr. Elmer V. McCollum, Professor Emeritus of Biochemistry, Johns Hopkins University, Baltimore, is Honorary President; Dr. Paul György, Professor of Pediatrics, University of Pennsylvania, Philadelphia, is Chairman of the Organizing Committee; Dr. W. H. Sebrell, Jr., Director, Institute of Nutrition Sciences, School of Public Health and Administrative Medicine, Columbia University, New York City, is Chairman of the Program Committee.

For full information write:

The Secretariat
Fifth International Congress on Nutrition
9650 Wisconsin Avenue
Washington 14, D. C.

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XUM

DIRECTORY OF SPECIAL MEETINGS AND FUNCTIONS

SATURDAY, APRIL 9

Meetings

Physiology Council—9:00 A.M. (*Normandy Lounge, Morrison*)
Nutrition Council—7:00 P.M. (*Rm. 8, Conrad Hilton*)
Journal of Biological Chemistry Ed. Board and Committee—9:00 A.M. (*Rm. 18, Conrad Hilton*)

Dinner

Journal of Biological Chemistry Ed. Board and Committee—6:30 P.M. (*Rm. 19, Conrad Hilton*)

SUNDAY, APRIL 10

Meetings

Physiology Council—9:00 A.M. and 7:30 P.M. (*Normandy Lounge, Morrison*)
Biochemistry Council—9:00 A.M. and 7:30 P.M. (*Rm. 9, Conrad Hilton*)
Pharmacology Council—9:00 A.M. (*Rm. 1, Palmer House*)
Pathology Council—9:30 A.M. and 7:30 P.M. (*Parkview Rm., Congress*)
Nutrition Council—9:00 A.M. and 7:30 P.M. (*Rm. 8, Conrad Hilton*)
Immunology Council—9:30 A.M. and 7:30 P.M. (*Flower Rm., Blackstone*)
Am. Board of Clinical Chemistry—2:00 P.M. (*Rm. 20, Conrad Hilton*)
Am. Society for Artificial Internal Organs—9:00 A.M. and 2:00 P.M. (*Gold Rm., Congress*)
Am. Society of Biological Chemists, Membership Committee—9:00 A.M. and 7:30 P.M. (*Rm. 10, Conrad Hilton*)
Annual Review of Physiology, Editorial Committee—2:00 P.M. (*Rm. 2, Palmer House*)
Neurophysiology Group, 'Nerve Membrane Hypotheses'—3:00 P.M. (*Red Lacquer Rm., Palmer House*)
Pharmacological Reviews Ed. Board—10:00 A.M. (*Rm. 4, Palmer House*)
Poultry Nutrition Conference—1:30 P.M. and 7:30 P.M. (*Waldorf Rm., Conrad Hilton*)
Ruminant Nutrition—1:30 P.M. (*Astoria Rm., Conrad Hilton*)
Society for Experimental Biology and Medicine, Membership Committee—1:30 P.M. (*Rm. 5, Conrad Hilton*); Board of Editors—3:30 P.M. (*Rm. 1, Conrad Hilton*)

Luncheon

Federation Board—12:30 P.M. (*Rm. 4, Conrad Hilton*)

Dinners

Am. Board of Clinical Chemistry—6:30 P.M. (*Rm. 20, Conrad Hilton*)
Am. Society for Artificial Internal Organs—7:30 P.M. (*Florentine Rm., Congress*)
Society for Experimental Biology and Medicine—6:15 P.M. (*Rm. 3, Conrad Hilton*)

MONDAY, APRIL 11

Meetings

Pathology Council—9:30 A.M. (*Parkview Rm., Congress*)
Pharmacology Council—9:00 A.M. and 2:00 P.M. (*Rm. 1, Palmer House*)
Am. Assn. of Scientific Workers, Business Meeting—5:00 P.M.; Public Meeting—8:15 P.M. (*Rm. 14, Palmer House*)
Am. Board of Nutrition—9:00 A.M. (*Rms. 19 and 20, Conrad Hilton*)
Am. Society for Artificial Internal Organs—8:30 A.M. and 2:00 P.M. (*Gold Rm., Congress*)
Am. Society of Biological Chemists, Membership Committee—9:00 A.M. (*Rm. 10, Conrad Hilton*)
Am. Type Culture Collection, Committee of Virology—4:15 P.M. (*Chicago Rm., Blackstone*)
Chemical Protection-Bone Marrow Conference—8:00 P.M. (*Grand Ballroom, Morrison*)
Journal of Pharmacology and Experimental Therapeutics, Editorial Board—4:00 P.M. (*Rm. 9, Palmer House*)
Society for Experimental Biology and Medicine Council—9:30 A.M. (*Rm. 4, Conrad Hilton*); Section Secretaries—4:00 P.M. (*Rm. 13, Conrad Hilton*)

Luncheons

Journal of Nutrition Ed. Board—12:00 noon (*Rm. 14, Conrad Hilton*)
Journal of Pharmacology and Experimental Therapeutics, Spec. Field Editors—12:00 noon (*Rm. 2, Palmer House*)
Society for Experimental Biology and Medicine Council—12:30 P.M. (*Rm. 3, Conrad Hilton*)

Cocktail Hour

Harvard Biochemists—5:00 P.M. (*University Club, Monroe and Michigan Ave.*)
Yale Biochemists—5:00 P.M. (*Washington Rm., Congress*)

Dinners

Am. Society of Biological Chemists, Committee on Educational Affairs—6:30 P.M. (*Rm. 12, Conrad Hilton*)
Exhibits Advisory Committee and Federation Secretaries—6:30 P.M. (*Conrad Hilton*)
Neuroendocrine Group—7:00 P.M. (*Rm. 18, Palmer House*)
Pharmacology Joint Ed. Boards—6:00 P.M. (*Rm. 17, Palmer House*)
Univ. of Southern California Biochemists—7:00 P.M. (*Home of Dr. Richard J. Winzler*)
Univ. of Wisconsin—6:00 P.M. (*Furniture Club of America, 666 Lake Shore Dr.*)

Evening

V du V Gathering—10:00 P.M. (*Rm. 4, Conrad Hilton*)

TUESDAY, APRIL 12

Luncheon

Internatl. Congress on Nutrition, Organizing Committee—12:00 noon (*Rm. 1, Conrad Hilton*)

Cocktail Hour

Univ. of Washington, Dept. of Biochemistry—5:30 P.M. (*Astoria Rm., Conrad Hilton*)
Univ. of Texas—5:00 P.M. (*Rm. 4, Conrad Hilton*)

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XUM

SCHEDULE OF SCIENTIFIC SESSIONS—APRIL 11–15, 1960

	LOCATION	MONDAY, APRIL 11		TUESDAY, APRIL 12		WEDNESDAY, APRIL 13		THURSDAY, APRIL 14		FRIDAY, APRIL 15	
		9:00 A.M.	1:30 P.M.	9:00 A.M.	1:30 P.M.	9:00 A.M.	1:30 P.M.	9:00 A.M.	1:30 P.M.	9:00 A.M.	1:00 P.M.
MORRISON	GRAND BALLROOM	PHYSIOLOGY Cardiac Excitability	PHYSIOLOGY Hypothalamus	PHYSIOLOGY Cardiac Dynamics I	PHYSIOLOGY Coronary	PHYSIOLOGY Cardiac Output	PHYSIOLOGY Indicator-Dilution Techniques	PHYSIOLOGY Cardiac Muscle	PHYSIOLOGY Gastric Secretion	PHYSIOLOGY Cardiac Dynamics II	PHYSIOLOGY Blood Volume ECG
	TERRACE CASINO		INTERSOCIETY *Symp:* Protection and Recovery	INTERSOCIETY *Symp:* Animal Behavior and Neurophysiology Correlates	PHYSIOLOGY *Symp:* Neurophysiology of Learning and Behavior	PHYSIOLOGY *Session on Teaching:* National Standards for Grad. Degrees	PHYSIOLOGY G.I. Motility	INTERSOCIETY Atherosclerosis I: General	INTERSOCIETY Atherosclerosis II: Human Studies	INTERSOCIETY Atherosclerosis III: Exptl. Animals	INTERSOCIETY Atherosclerosis IV: Serum Lipids
	CONSTITUTION ROOM	PHYSIOLOGY Reflexes	PHYSIOLOGY Peripheral Nerve; Synapses	PHYSIOLOGY Cerebral Cortex	PHYSIOLOGY Brain Stem; Mid-Brain *Business Meeting*	PHYSIOLOGY Sensory I	PHYSIOLOGY Learning; Behavior; Motivation	PHYSIOLOGY Sensory II	PHYSIOLOGY Brain; Spinal Cord *Business Meeting*	INTERSOCIETY *Symp:* New & Neglected Hormones	
	COTILLION ROOM	INTERSOCIETY Endocrinology I	INTERSOCIETY Endocrinology II	INTERSOCIETY Endocrinology IV	INTERSOCIETY Endocrinology V	INTERSOCIETY Endocrinology VII	INTERSOCIETY Endocrinology VIII	INTERSOCIETY Endocrinology IX	INTERSOCIETY Endocrinology X	PHARMACOLOGY Nerve-Muscle	INTERSOCIETY Endocrinology XI
	MADISON ROOM	PHYSIOLOGY Respiration Control	PHYSIOLOGY Pulmonary Blood Flow I	PHYSIOLOGY Respiration Mechanics I	PHYSIOLOGY Pulmonary Blood Flow II	PHYSIOLOGY Respiration Mechanics II	PHYSIOLOGY O_2 & CO_2 Transport I	PHYSIOLOGY O_2 & CO_2 Transport II	PHYSIOLOGY Pulmonary Diffusion	PHYSIOLOGY Respiration Mechanics III	
	EMBASSY ROOM	PHYSIOLOGY Blood Pressure; Hypertension	PHYSIOLOGY Shock	PHYSIOLOGY Active Transport	PHYSIOLOGY Muscle I	PHYSIOLOGY Peripheral Blood Flow I	PHYSIOLOGY Peripheral Blood Flow II	PHYSIOLOGY RBC; Platelets	PHYSIOLOGY Peripheral Blood Flow III	PHYSIOLOGY Sex; Reproduction	
	VENETIAN ROOM	PHARMACOLOGY CNS Stimulants	INTERSOCIETY Endocrinology III	PHYSIOLOGY Hypothermia; Hibernation	INTERSOCIETY Endocrinology VI	PHYSIOLOGY Cold Exposure; Shivering	PHYSIOLOGY Muscle II	PHYSIOLOGY Heat Exposure; Environmental; General	PHYSIOLOGY Energy Metabolism; Exercise	PHYSIOLOGY Absorption from G.I. Tract	INTERSOCIETY Endocrinology XII
	PARLORS B & C	INTERSOCIETY Muscle I	INTERSOCIETY Muscle II	INTERSOCIETY Blood Clotting I	INTERSOCIETY Blood Clotting II	INTERSOCIETY Blood Clotting III	INTERSOCIETY Blood Clotting IV	IMMUNOLOGY Blood Groups; Isoantibodies	INTERSOCIETY Blood Clotting V		
	HOLLYWOOD ROOM	PHYSIOLOGY Cellular	PHARMACOLOGY Cardiovascular I	PHYSIOLOGY Lipids	PHARMACOLOGY Cardiovascular II	PHYSIOLOGY Parathyroid; Calcium; Bone	PHARMACOLOGY Cardiovascular III	PHYSIOLOGY Fatty Acids	PHARMACOLOGY Cardiovascular IV	PHYSIOLOGY Liver; Enzymes; General	PHARMACOLOGY Cardiovascular V
PALMER HOUSE	GRAND BALLROOM		INTERSOCIETY Neuropharmacology I	INTERSOCIETY Neuropharmacology II	INTERSOCIETY Neuropharmacology III	INTERSOCIETY Neuropharmacology IV	INTERSOCIETY *Symp:* Current Concepts in Lipid Metabolism	INTERSOCIETY Neuropharmacology VI	INTERSOCIETY Neuropharmacology VII	INTERSOCIETY Neuropharmacology VIII	INTERSOCIETY Neuropharmacology IX
	RED LACQUER ROOM	PHARMACOLOGY Drug Metabolism I and Toxicology I	PHARMACOLOGY Drug Metabolism II	INTERSOCIETY Tissue Culture II	PHARMACOLOGY *Business Meeting*	INTERSOCIETY *Symp:* Toxicology	INTERSOCIETY *Symp:* Toxicology	PHARMACOLOGY Toxicology II	PHARMACOLOGY Toxicology III *Business Meeting*	PHARMACOLOGY Chemotherapy I	PHARMACOLOGY Chemotherapy II
	WABASH ROOM	PHYSIOLOGY Renal	PHYSIOLOGY Renal Blood Flow	PHARMACOLOGY Renal I	PHARMACOLOGY Renal II	PHYSIOLOGY Renal Tubule	PHYSIOLOGY Electrolytes I	PHYSIOLOGY Electrolytes II	PHYSIOLOGY Electrolyte Excretion	PHYSIOLOGY Body Fluids; Lymph	PHYSIOLOGY Diuresis
	CRYSTAL ROOM		PHARMACOLOGY Autonomics I	PHARMACOLOGY Monoamine Oxidase Inhibitors	PHARMACOLOGY Autonomics II	PHARMACOLOGY Psychopharmacology	PHARMACOLOGY Analgesics I	PHARMACOLOGY Autonomics III	PHARMACOLOGY Autonomics IV	PHARMACOLOGY Analgesics II	PHARMACOLOGY Autonomics V & Antihistaminics
	NORMANDIE		BIOCHEMISTRY	BIOCHEMISTRY	BIOCHEMISTRY	BIOCHEMISTRY	BIOCHEMISTRY	BIOCHEMISTRY Oxidative	BIOCHEMISTRY Tricarboxylic	BIOCHEMISTRY Steroids IV	

PARLIAMENT	CRYSTAL ROOM		PHARMACOLOGY Autonomics I	PHARMACOLOGY Monoamine Oxidase Inhibitors	PHARMACOLOGY Autonomics II	PHARMACOLOGY Psychopharmacology	PHARMACOLOGY Analgesics I	PHARMACOLOGY Autonomics III	PHARMACOLOGY Autonomics IV	PHARMACOLOGY Analgesics II	PHARMACOLOGY Autonomics V & Antihistaminics
CONRAD HILTON	NORMANDIE LOUNGE		BIOCHEMISTRY Electron Transport I	BIOCHEMISTRY Active Transport	BIOCHEMISTRY Enzymes III	BIOCHEMISTRY Amino Acids I	BIOCHEMISTRY Amino Acids II	BIOCHEMISTRY Oxidative Enzymes III	BIOCHEMISTRY Tricarboxylic Acid Cycle	BIOCHEMISTRY Steroids IV	
	WALDORF ROOM	NUTRITION Clin. Nutrition I: Proteins and Amino Acids	NUTRITION Clin. Nutrition II: Vitamins and General	NUTRITION Human Nutrition *Business Meeting*	NUTRITION *Symp:* Metabolic Patterns in Children	NUTRITION *Symp:* Nutrition Appraisal	NUTRITION *Symp:* Interaction of Mineral Elements	NUTRITION *Symp:* Mechanism of Action, Vit. B_{12} *Business Meeting*	NUTRITION Vitamin E	NUTRITION Vitamins (A, D, K & General)	NUTRITION *Symp:* Irradiated Foods
	UPPER TOWER		BIOCHEMISTRY Steroids	BIOCHEMISTRY Nucleic Acids I	BIOCHEMISTRY Carbohydrates II	BIOCHEMISTRY Carbohydrates III	BIOCHEMISTRY Oxidat. Phosphoryl. Mitochondria	BIOCHEMISTRY Protein Biosynthesis III	BIOCHEMISTRY Proteins IV	BIOCHEMISTRY Carbohydrates IV	
	BEVERLY ROOM	NUTRITION Animal Nutrition	NUTRITION Amino Acid Nutrition & Metab.	BIOCHEMISTRY Enzymes II	BIOCHEMISTRY Nucleic Acids II	BIOCHEMISTRY Phospholipids I	BIOCHEMISTRY Phospholipids II	BIOCHEMISTRY Amino Acids III	BIOCHEMISTRY Growth Regulation	BIOCHEMISTRY Enzymes V	
	WILLIFORD ROOM	BIOCHEMISTRY *Symp:* Topics of Current Interest	BIOCHEMISTRY Carbohydrates I	BIOCHEMISTRY Biochemical Genetics; Induced Enzymes	BIOCHEMISTRY Protein Biosynthesis I	BIOCHEMISTRY Oxidative Enzymes II	BIOCHEMISTRY Steroids III	BIOCHEMISTRY Proteins III	BIOCHEMISTRY Purines	BIOCHEMISTRY Nucleic Acids IV	BIOCHEMISTRY. *Symp:* Carbohydrate Metabolism
	ASTORIA ROOM		BIOCHEMISTRY Cell Metabolism	NUTRITION Amino Acids & Proteins	NUTRITION Mineral Nutrition & Metabolism	NUTRITION Lipid Metabolism & Nutrition	NUTRITION Vitamin B Complex	NUTRITION Carbohydrates & Toxicology	NUTRITION Vitamin B_6 & Vitamin B_{12}	BIOCHEMISTRY Natural Products	
	BOULEVARD ROOM		BIOCHEMISTRY Viruses & Genetic Mechanisms	BIOCHEMISTRY Proteins I	BIOCHEMISTRY Oxidative Enzymes I	BIOCHEMISTRY Enzymes IV	BIOCHEMISTRY Pyrimidines I	BIOCHEMISTRY Pyrimidines II	BIOCHEMISTRY Hemoglobin	BIOCHEMISTRY Proteins V	
CONGRESS	GOLD ROOM			INTERSOCIETY Gastroenterology I	INTERSOCIETY *Symp:* Gastroenterology	INTERSOCIETY Gastroenterology II	PATHOLOGY Radiation	BIOCHEMISTRY Lipid Metabolism II	BIOCHEMISTRY Vitamins & Cofactors I	BIOCHEMISTRY Vitamins & Cofactors II	
	FLORENTINE ROOM		PATHOLOGY Kidney	BIOCHEMISTRY Catecholamines	PATHOLOGY Endotoxins, etc. *Business Meeting*	PATHOLOGY Liver	PATHOLOGY Liver, Pancreas	PATHOLOGY Cardiovascular, etc.	PATHOLOGY Viruses, etc.	PATHOLOGY Transplantation	
	FRANCIS I ROOM		INTERSOCIETY Cytology I	INTERSOCIETY Cytology II	INTERSOCIETY Cytology III	INTERSOCIETY Cytology IV; Leucocytes	PATHOLOGY Connective Tissue I	PATHOLOGY Techniques	PATHOLOGY Connective Tissue II		
BLACKSTONE	CRYSTAL BALLROOM	INTERSOCIETY Tissue Culture I	IMMUNOLOGY Transplant & Tissue Antibodies	IMMUNOLOGY Infection & Resistance	IMMUNOLOGY Microorganisms II *Business Meeting*	IMMUNOLOGY Antigens & Antibodies II	IMMUNOLOGY Hypersensitivity I	INTERSOCIETY Tissue Culture III	IMMUNOLOGY Hypersensitivity II	INTERSOCIETY Tissue Culture IV	
	MAYFAIR ROOM	IMMUNOLOGY Viruses: General	IMMUNOLOGY Microorganisms I	IMMUNOLOGY Antigens & Antibodies I	BIOCHEMISTRY Proteins II	IMMUNOLOGY Enteroviruses	IMMUNOLOGY Myxoviruses	IMMUNOLOGY Antigen & Antibodies III	IMMUNOLOGY Complement; Properdin	IMMUNOLOGY Hypersensitivity III	
	HUBBARD ROOM	IMMUNOLOGY Antigen-Antibody Reactions I	BIOCHEMISTRY Tumors	BIOCHEMISTRY Steroids II	BIOCHEMISTRY Erythrocytes	BIOCHEMISTRY Mineral Metabolism	BIOCHEMISTRY Glycoproteins; Sialic Acid	BIOCHEMISTRY Clinical Chemistry	BIOCHEMISTRY Collagens	IMMUNOLOGY Antigen-Antibody Reactions II	

Evening Sessions:

MOTION PICTURES—Monday, 8:00 p.m., Conrad Hilton, Grand Ballroom
JOINT SESSION—Tuesday, 8:00 p.m., Conrad Hilton, Grand Ballroom
IMMUNOLOGY SPECIAL SESSION—Wednesday, 8:00 p.m., Blackstone, Crystal Ballroom

Dinners

Univ. of Rochester—5:15 P.M. (*Rm. 18, Palmer House*)
Liver Dinner—6:00 P.M. (*Lincoln Room, Congress*)
Physiology Joint Ed. Boards—6:00 P.M. (*Promenade Rm., Morrison*)
Research Discussion Group—6:00 P.M. (*Rm. 6, Palmer House*)
W. T. Salter Society—6:30 P.M. (*Walnut Rm., Morrison*)

Evening

St. Louis Univ. Biochemistry Mixer—9:00 P.M. (*Astoria Rm., Conrad Hilton*)

WEDNESDAY, APRIL 13

Meetings

Internatl. Congress on Nutrition, Women's Hospitality Committee—10:00 A.M. (*Rm. 1, Conrad Hilton*)
Lecture on Glomerulotrophin—4:30 P.M. (*Walnut Rm., Morrison*)

Breakfast

State Univ. of Iowa—7:45 A.M. (*Harding's, 21 South Wabash Ave.*)

Luncheons

Pharmacology Past Presidents—12:30 P.M. (*Rm. 6, Palmer House*)
Am. Physiological Society Education Committee—12:30 P.M. (*Normandy Lounge, Morrison*)
Taliaferro Testimonial Luncheon—12:00 noon (*Ivy Rm., Blackstone*)

Cocktail Hour

Johns Hopkins Alumni—5:00 P.M. (*Rm. 14, Palmer House*)
Univ. of Illinois (Urbana)—5:00 P.M. (*Bel Air Rm., Conrad Hilton*)

Dinners

Am. Assn. of Clinical Chemists, Executive Committee—6:00 P.M. (*Ivy Rm., Blackstone*)
Comparative Biochemistry—6:00 P.M. (*Riccardo's Restaurant*)
Comparative Physiology—6:30 P.M. (*Henrici's Restaurant, 67-71 W. Randolph St.*)
Metabolic Discussion Group—6:00 P.M. (*Kungsholm Restaurant, 100 East Ontario*)
Nutrition Society—6:30 P.M. (*Williford Rm., Conrad Hilton*)
Pathology Society—7:00 P.M. (*Florentine Room, Congress*)
Pharmacology Society—6:30 P.M. (*Grand Ballroom, Palmer House*)
Univ. of California (Northern Section) Biochemists—6:30 P.M. (*Astoria Rm., Conrad Hilton*)

Evening

Biochemistry-Nutrition Smoker—9:00 P.M. (*Grand Ballroom, Conrad Hilton*)

THURSDAY, APRIL 14

Meetings

Am. Assn. of Clinical Chemists (Membership)—4:30 P.M. (*Crystal Ballroom, Blackstone*)
Bureau of Biological Res. Alumni Assn. of Rutgers Univ.—8:00 P.M. (*Rm. 5, Conrad Hilton*)

Luncheon

Federation Secretaries Committee—12:30 P.M. (*Rm. 6, Palmer House*)

Dinners

Coagulation Group, Social Hour—5:00 P.M.; Dinner—7:00 P.M. (*Swedish Club, 1258 N. LaSalle St.*)
Histamine Club—6:00 P.M. (*Rm. 9, Palmer House*)
Temperature Regulation—6:00 P.M. (*Henrici's Restaurant, 67-71 W. Randolph St.*)

FRIDAY, APRIL 15

Meeting

Physiological Reviews, Editorial Board—9:00 A.M. (*Normandy Lounge, Morrison*)

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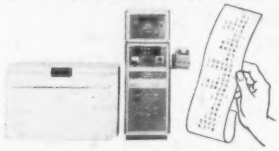

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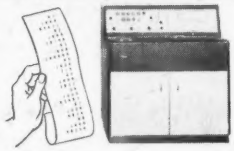

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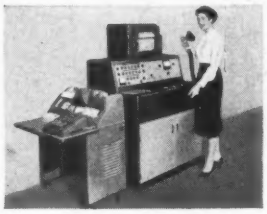

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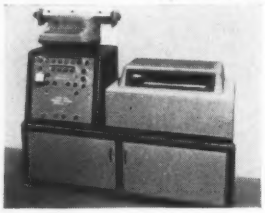

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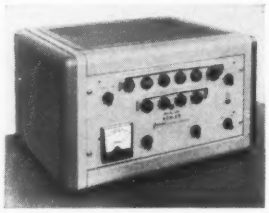

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